EXPANDED Mac Superguide p. 108 • FIRST LOOK 275MHz Killer Mac p. 117

SEPTEMBER 1997

Macworld

Amelio Ousted
PAGE 25

THE ESSENTIAL MACINTOSH RESOURCE
www.macworld.com

WHAT'S NEW PAGE 120
INSIDER'S GUIDE PAGE 127
ESSENTIAL ADD-ONS PAGE 130

WORTH THE WAIT

Mac OS 8

MARKETING BREAKTHROUGH #9:

FREE RAM

MARKETING BREAKTHROUGH #10:

$500 PRICE DROP

Display sold separately.

POWERTOWER PRO 250 STARTER

250 MHz PowerPC 604e Processor
Upgrade RAM from 32MB to 128MB Free!
Macromedia Director™ 5.0

- Your Choice: 4GB 5400 RPM Hard Drive or 2GB 7200 RPM AV-capable Hard Drive
- 16x CD-ROM Drive
- 1MB Level-2 Cache
- IX Micro Twin Turbo 128-bit Graphics Accelerator w/ 8MB VRAM
- 6 PCI Expansion Slots
- $2,500 Bundled Software Including Macromedia Director 5.0
- Extended Keyboard & Mouse
- Tower Enclosure

$3995 36-month business lease $143 per month[1]

NEW LOW PRICE!

UPGRADE RAM TO 128MB FREE!

POWERTOWER PRO 225 CORE

225 MHz PowerPC 604e Processor
Upgrade RAM from 16MB to 128MB Free!
Macromedia Director 5.0

- 2GB 5400 RPM Hard Drive
- 16x CD-ROM Drive
- 1MB Level 2-Cache
- 2MB 64-bit Graphics Accelerator Card
- 6 PCI Expansion Slots
- $2,500 Bundled Software Including Macromedia Director 5.0
- Extended Keyboard & Mouse
- Tower Enclosure

MACWORLD MW EDITORS' CHOICE
MacWEEK
MacUser ZD LABS

$2995 36-month business lease $110 per month

NEW LOW PRICE!

UPGRADE RAM TO 64MB FREE!

POWERCENTER PRO 210 STARTER

210 MHz PowerPC 604e Processor
Upgrade RAM from 16MB to 64MB Free!
Exclusive 60 MHz Bus

- 2GB 5400 RPM Hard Drive
- 16x CD-ROM Drive
- 1MB Level-2 Cache
- 2MB Video DRAM (4MB max)
- On-board 3D Graphics Acceleration
- 3 PCI Expansion Slots
- $1,000 Bundled Software
- Extended Keyboard & Mouse
- Low-profile Enclosure

MACWORLD MW EDITORS' CHOICE
MacWEEK
MacUser ZD LABS

$2395 36-month business lease $88 per month

$100 REBATE

POWERBASE 240 STARTER

240 MHz PowerPC 603e Processor
16MB RAM (160MB max)
On-board 3D Graphics Acceleration

- 2GB IDE Hard Drive*
- 12x CD-ROM Drive
- 256K Level 2-Cache
- 2MB Video DRAM (4MB max)
- 3 PCI Expansion Slots
- $1,000 Bundled Software including Weekend Warrior™ by Bungie Software
- Extended Keyboard & Mouse
- Low-profile Enclosure

MACWORLD MW EDITORS' CHOICE
MacWEEK
MacUser ZD LABS

$1499 36-month business lease $55 per month

Price After $100 Rebate (expires 7/31/97)

ORDER DIRECT: 800-410-7693

OR ORDER ONLINE AT WWW.POWERCC.COM

Major Accounts, Education and Government customers call 800-952-9246
Ask about leasing and purchase order payment plans.

PowerComputing®

2400 South Interstate 35, Round Rock, TX 78681 • Tel: 512-388-6868 • Fax: 512-388-6799

Circle 151 on reader service card

TOP-TIER PERFORMANCE, FREE RA
AVAILABLE NOW WITH POWERTOW

Power Computing Announces Free 128MB and 64MB RAM Upgrades

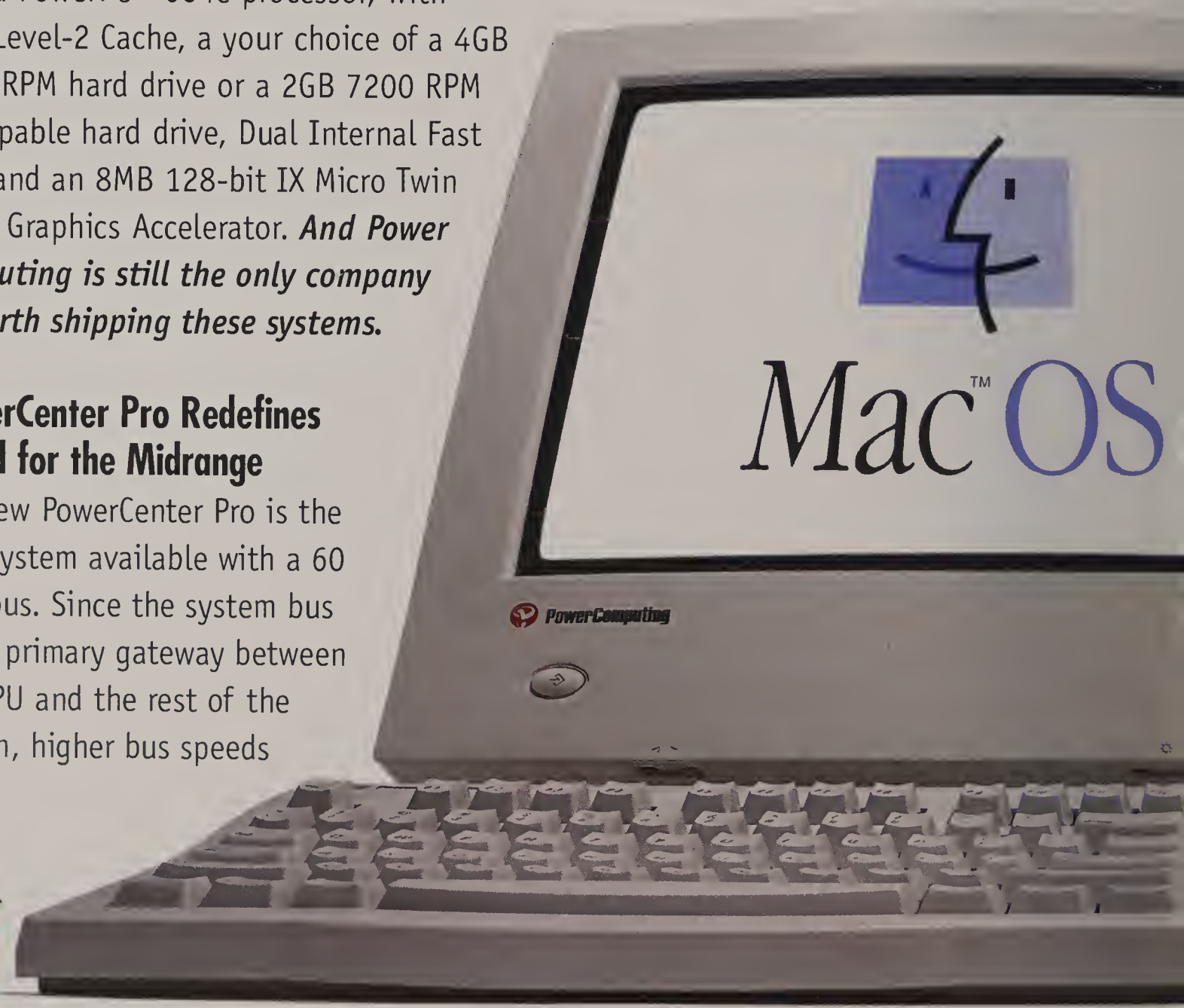
Our new systems have been getting a lot of positive attention. ***Great reviews. Awards. Big Ratings.*** These things go on year-round. But, this summer, we're giving you a special incentive to get your attention. Here it is: ***Buy a PowerTower™ Pro and we'll upgrade it to 128MB RAM, or buy a PowerCenter™ Pro 210 and we'll upgrade it to 64MB RAM, Free!***

PowerTower Pro Systems Get a $500 Price Break

We've taken $500 off the new PowerTower Pro 250 MHz — the fastest single processor system on any planet. And that includes the PC planet as well! The PowerTower Pro 250 runs a PowerPC™ 604e processor, with 1MB Level-2 Cache, a your choice of a 4GB 5400 RPM hard drive or a 2GB 7200 RPM AV-capable hard drive, Dual Internal Fast SCSI and an 8MB 128-bit IX Micro Twin Turbo Graphics Accelerator. ***And Power Computing is still the only company on earth shipping these systems.***

PowerCenter Pro Redefines Speed for the Midrange

The new PowerCenter Pro is the only system available with a 60 MHz bus. Since the system bus is the primary gateway between the CPU and the rest of the system, higher bus speeds



CPU UPGRADEABLE

© 1997 Power Computing Corporation. All rights reserved June 1997. The Mac OS and the Mac OS logo are trademarks of Apple Computer, Inc., and are used under license from Apple Computer, Inc. The Mac OS logo
PowerPC is a trademark of International Business Machines, Corp., and is used under license. All other brand and/or product names are the property of their respective holders. Power Computing is not responsi

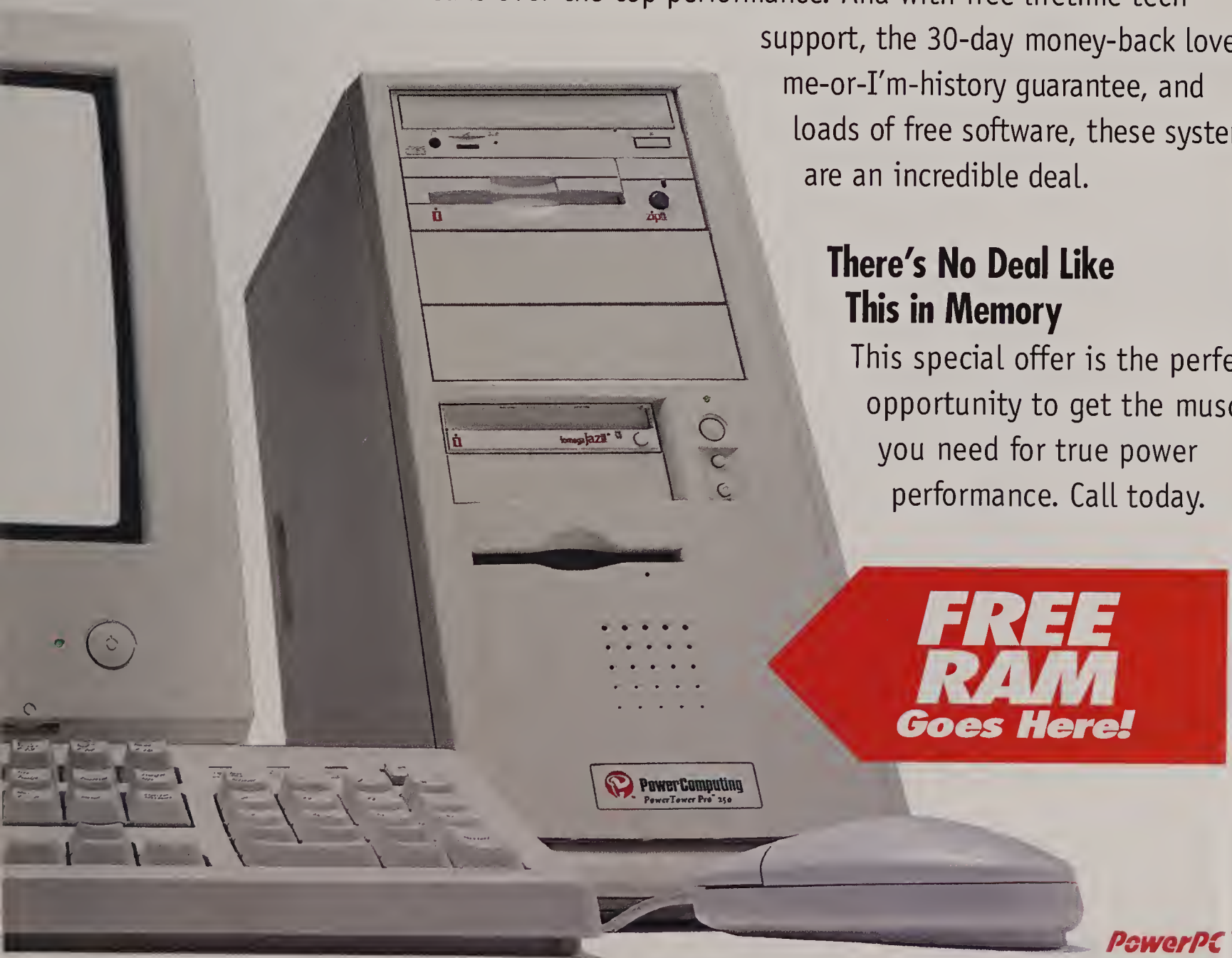
M UPGRADES, AND NEW LOW PRICES:
ER PRO AND POWERCENTER PRO 210

mean greater bandwidth for data transfer. Greater bandwidth means proportionally higher tota system speeds, and we all know what that means — ***more Power!*** Couple that with a 180 MH or 210 MHz PowerPC 604e processor and you get the fastest mid-range system you can buy.

The Critics Rave: These New Systems Are an Unprecedented Value!

Our new systems are hot (and the competition is toast)! The PowerCenter Pro and PowerTower Pro are both winners of *MacWEEK*'s coveted 5-diamond award. The PowerCenter Pro won *Macworld* Editor's Choice for Best Business Office Mac and Desktop Publishing System. The PowerTower Pro is *Macworld*'s Editor's Choice for 3D Graphics, Image Editing and Publishing

More RAM means over-the-top performance. And with free lifetime tech support, the 30-day money-back love-me-or-I'm-history guarantee, and loads of free software, these systems are an incredible deal.



There's No Deal Like This in Memory

This special offer is the perfect opportunity to get the muscle you need for true power performance. Call today.

FREE RAM Goes Here!

PowerPC

stered in the United States and other countries. The Power Computing logo is a registered trademark of Power Computing Corporation. PowerTower, PowerCenter, and PowerBase are trademarks of Power Computing Corporati n. rrors in photography or typography. Shipping will not be refunded. Prices and specifications are valid in the U.S. only and are subject to change without notice. †Prices do not include applicable taxes. *2000KB capacity.

SEPTEMBER 1997

Macworld

Worth the Wait: Mac OS 8

Take an in-depth tour of Mac OS 8: Macworld's guide to the new features, the hottest secrets, and the best add-ons.

120
LAB TEST
Mac OS 8 Arrives
BY FRANKLIN N. TESSLER We take a close look at the new operating system while pointing out the best new features (and how to use them).

127
Mac OS 8 Secrets
BY JOSEPH SCHORR Undocumented tricks and techniques speed you on your way through Mac OS 8.

130
Best Utilities
BY ROBERT C. ECKHARDT Get more out of Mac OS 8 with these essential add-on utilities.

The latest thing in panoramic QTVR cameras in News, page 34.

Features

LAB TEST
117 275MHz Mac Powerhouse
BY TOVA FLIEGEL Macworld Lab tests this revolutionary new system and proves this to be the fastest Mac ever—by a wide margin.

136 Top Pocket Organizers
BY DAVID POGUE *Macworld* profiles four palmtops to pick the best personal organizer.

News

Technology Preview
32 Hands-on CHRP
Prototype systems show the promise of faster, open-architecture machines.

36 PDF's Little Rival
Jstream's Java-based alternative to PDF offers small, Web-friendly file sizes.

38 Apple Charges for Tech Support
Users feel the pinch of corporate belt-tightening as Apple ditches free support.

44 Is the Licensing Fight Over?
Clone makers and Apple make nice over recent licensing disagreements.

Looking ahead in News—the CHRP advantage, page 32.

Four simple ways to improve Web type, in Media, page 155.

Opinion

17 **Letters**

25 **State of the Mac**
BY ADRIAN MELLO

234 **The Desktop Critic**
BY DAVID POGUE The zodiacal Mac.

12 **How to Contact Macworld**

Media

155 **Improving Your Web Typography**
BY JIM HEID Using better-looking typography for a better-looking Web site.

158 **Publishing Workshop**
BY DAVID BLATNER The ins and outs of leading and kerning.

160 **Graphics Workshop**
BY CATHY ABES Creating high-resolution color line art with reasonable file sizes.

ON THE COVER

Screen image by SuperStock

Buyers' Tools

97 **Star Ratings**
Macworld's ratings for hundreds of hardware and software products at a glance.

LAB TEST
108 **Expanded Mac Superguide**
Detailed specs for every Mac system on the market, lab tested and Star Rated.

Sharp's rotating-lens digital camera in News, page 33. Self-portraits, anyone?

Secrets

145 **Whistle While You Work**
BY JOSEPH SCHORR The AppleCD Audio Player is better than you think.

149 **Quick Tips**
BY LON POOLE Tips, tricks, and shortcuts.

Reviews

56 ★★★★/8.2 **Director 6 Multimedia Studio**
Multimedia authoring suite

58 ★★★/6.8 **Virtual PC 1.0**
Windows-emulation utility

60 ★★★/6.6 **StarMax 5000/300**
Home-office system

62 ★★★★/8.2 **Flash 2.0;**
★★★★/7.4 **ObjectDancer 1.1;**
★★★/6.0 **WebAnimator 1.1;**
★★★/6.9 **WebPainter 1.0**
Web animators compared

64 ★★★★/7.2 **Color PageWiz;**
★★★★/7.9 **PaperPort Strobe**
Color page scanners compared

65 ★★★★★/9.1 **Painter 5**
Natural-media paint program

66 ★★★★/7.6 **ActivStats 1.0;**
★★★/6.8 **FloStat 2.0;**
★★★★/7.1 **Prism 2.0**
Statistical software programs compared

68 ★/2.2 **Screen To Screen 1.02**
Screen-sharing utility

70 ★★★★/7.7 **NetObjects Fusion 2.0**
Web authoring package

73 ★★★★/8.1 **MiniCAD 7**
CAD program

74 ★★★★/7.0 **Overture 2.01**
Music notation program

76 ★★★/6.9 **KeyQuencer 2.1**
Macro utility

78 ★★★/6.2 **Scorpio 1.1**
Low-end word processor

80 ★★★/5.4 **Vertigo 3D Dizzy**
QuickDraw 3D plug-in for Photoshop

80 ★★★★/7.7 **Roaster Release 3**
Java programming environment

82 ★★★★/8.8 **CyberGauge 2.0**
Network traffic monitor

82 ★★★★/8.6 **LinkUPPP 1.1**
PPP client software

84 ★★★★/7.4 **MacSpartan Plus 1.1**
Molecular modeling software

84 ★★★/6.9 **MacA&D 6.0**
CASE programming tool

86 ★★★★/8.1 **ADB I/O**
Mac-to-appliance interface

87 ★★★★/8.4 **PowerKey Pro 600**
Programmable power strip

88 ★★★★/7.4 **CameraMan 3.0**
Screen-activity capture utility

90 ★★★★/8.2 **Gene Inspector 1.0**
DNA sequencing and analysis program

90 ★★★★/7.0 **Obsidian**
Puzzle game

92 ★★★★/7.0 **Duke Nukem 3D**
Action game

92 ★★★★/7.3 **The Louvre Museum**
Art showcase CD-ROM

"Motorola is delivering fast,
StarMax
well-configured consumer and small-
business systems with an outstanding
software bundle." —MacUser Magazine†

Only 5-Year warranty. Only $1,249. Only Motorola.

When it comes to Mac OS-compatible systems, who gives you the "best bang for the buck," according to Byte *Magazine?* Only Motorola. Packed with performance, features and aggressive pricing, StarMax™ computers add up to more Mac OS computing for the money. And we back our StarMax line of computers with the* ***only five-year limited warranty*** *in the business.*

StarMax 3000/180

$1,249**

- Mac® OS 7.6
- 180 MHz PowerPC® 603e
- 256K L2 Cache
- 1MB Video EDO DRAM
- 16MB Memory
- 1.2GB Hard Drive
- 8x CD-ROM
- Motorola 28.8 Data/Fax Modem
- $1,000 Home Office Software†
- 5-Year Limited Warranty

StarMax 3000/240

$2,299**

- Mac OS 7.6
- 240 MHz PowerPC 603e
- 512K L2 Cache
- 4MB Video SGRAM
- 32MB Memory
- 2.5GB Hard Drive
- 8x CD-ROM
- Motorola 28.8 Data/Fax Modem
- $1,000 Home Office Software†
- 5-Year Limited Warranty

StarMax 4000/200

$2,899**

- Mac OS 7.6
- 200 MHz PowerPC 604e
- 512K L2 Cache
- 2MB Video EDO DRAM
- 32MB Memory
- 4.3GB Hard Drive
- 16x CD-ROM
- 10BaseT Ethernet
- 100MB Zip Drive
- $850 Business Software†
- 5-Year Limited Warranty

StarMax 5000/300

$3,399**

- Mac OS 7.6
- 300 MHz PowerPC 603e
- 512K L2 Cache
- 4MB Video SGRAM
- 32MB Memory
- 4.3GB Hard Drive
- 16x CD-ROM
- 10/100 BaseT Ethernet
- 100MB Zip Drive
- IMS Twin Turbo Graphics Card
- 5-Year Limited Warranty

MacUser RATED 4½ June 1997 ††

It's enough to make the editors of MacUser *rate StarMax systems highest over other Mac OS-compatibles tested for performance and value.† Call us or visit our website to see for yourself what makes StarMax the only choice.*

www.mot.com/starmax/mwd1
or 1-800-759-1107 Ext. MWD1

MOTOROLA
Computer Group

**Byte*, March 1997. **MSRP. Monitor not included. †*MacUser*, June 1997. ††StarMax 3000/180 and 3000/240. †Approximate retail value. ©1997 Motorola, Inc. All rights reserved. StarMax is a trademark and Motorola and Ⓜ are registered trademarks of Motorola, Inc. PowerPC is a registered trademark of International Business Machines Corporation, used under license therefrom. Mac OS is a registered trademark of Apple Computer, Inc. All other trademarks or registered trademarks are the property of their respective holders.

What you never thought possible.™

Circle 207 on reader service card

AnthroCarts®!

AnthroCarts are *so* flexible. You have **dozens of shapes and sizes** to choose, plus over **50 accessories** to configure your cart exactly the way *you* want.

And they have a **Lifetime Warranty**! Made of steel and high density particle board, these AnthroCarts are as tough as nails.

See them all in our catalog, then call us direct to order. We'll ship to you the very next business day!

Call for your free catalog:

800-325-3841

6:00 AM to 6:00 PM PST, M–F

ANTHRO®

Anthro Corporation®
Technology Furniture®
10450 SW Manhasset Dr.
Tualatin, OR 97062
Fax: 800-325-0045
In Japan call: 03 (Tokyo)-3947-2735
www.anthro.com

Since 1984. Prices from $299. For a lower cost line for the home, ask for our Compacta catalog. GSA contract. Available for OEM applications. Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

Macworld

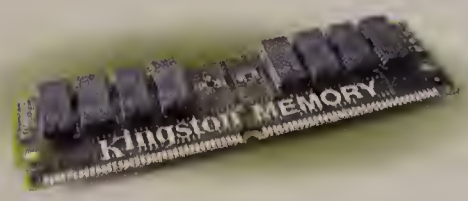
PRESIDENT AND CEO	Colin Crawford
ASSISTANT TO THE CEO	Sharon Sanderson
CHIEF OPERATING OFFICER	Stephen Daniels
FINANCIAL ANALYST	Eos de Feminis
VICE PRESIDENT, DIRECTOR OF HUMAN RESOURCES	Shelly Ginenthal
EMPLOYEE RELATIONS MANAGER	Marisa Chow
NETWORK MANAGER	Wally Clegg
MANAGER OF TECHNICAL SERVICES	Theodore Kim
IS TECHNICIAN	Dave Johnson
PROGRAMMER/ANALYST	Frederic Desbois
INFORMATION SYSTEMS COORDINATOR	Ginger von Wening
ACCOUNTING/OPERATIONS	Pat Murphy
ACCOUNTING/FACILITIES MANAGER	Michelle Reyes

Macworld is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 275 computer publications in over 75 countries. Sixty million people read one or more International Data Group publications each month. International Data Group's publications include: **ARGENTINA**: Buyer's Guide, Computerworld Argentina, PC World Argentina; **AUSTRALIA**: Australian Macworld, Australian PC World, Australian Reseller News, Computerworld, IT Casebook, Network World, Publish, Webmaster; **AUSTRIA**: Computerwelt Osterreich, Networks Austria, PC Tip Austria; **BANGLADESH**: PC World Bangladesh; **BELARUS**: PC World Belarus; **BELGIUM**: Data News; **BRAZIL**: Annuário de Informática, Computerworld, Connections, Macworld, PC Player, PC World, Publish, Reseller News, Supergamepower; **BULGARIA**: Computerworld Bulgaria, Network World Bulgaria, PC & MacWorld Bulgaria; **CANADA**: CIO Canada, Client/Server World, ComputerWorld Canada, InfoWorld Canada, NetworkWorld Canada, WebWorld; **CHILE**: Computerworld Chile, PC World Chile; **COLOMBIA**: Computerworld Colombia, PC World Colombia; **COSTA RICA**: PC World Centro America; **THE CZECH AND SLOVAK REPUBLICS**: Computerworld Czechoslovakia, Macworld Czech Republic, PC World Czechoslovakia; **DENMARK**: Communications World Danmark, Computerworld Danmark, Macworld Danmark, PC World Danmark, Techworld Denmark; **DOMINICAN REPUBLIC**: PC World Republica Dominicana; **ECUADOR**: PC World Ecuador; **EGYPT**: Computerworld Middle East, PC World Middle East; **EL SALVADOR**: PC World Centro America; **FINLAND**: MikroPC, Tietoverkko, Tietoviikko; **FRANCE**: Distributique, Hebdo, Info PC, Le Monde Informatique, Macworld, Reseaux & Telecoms, WebMaster France; **GERMANY**: Computer Partner, Computerwoche, Computerwoche Extra, Computerwoche FOCUS, Global Online, Macwelt, PC Welt; **GREECE**: Amiga Computing, GamePro Greece, Multimedia World; **GUATEMALA**: PC World Centro America; **HONDURAS**: PC World Centro America; **HONG KONG**: Computerworld Hong Kong, PC World Hong Kong, Publish in Asia; **HUNGARY**: ABCD CD-ROM, Computerworld Szamitastechnika, Internetto online Magazine, PC World Hungary, PC-X Magazin Hungary; **ICELAND**: Tolvuheimur PC World Island; **INDIA**: Information Communications World, Information Systems Computerworld, PC World India, Publish in Asia; **INDONESIA**: InfoKomputer PC World, Komputek Computerworld, Publish in Asia; **IRELAND**: ComputerScope, PC Live!; **ISRAEL**: Macworld Israel, People & Computers/ Computerworld; **ITALY**: Computerworld Italia, Macworld Italia, Networking Italia, PC World Italia, **JAPAN**: DTP World, Macworld Japan, Nikkei Personal Computing, OS/2 World Japan, SunWorld Japan, Windows NT World, Windows World Japan; **KENYA**: PC World East African; **KOREA**: Hi-Tech Information, Macworld Korea, PC World Korea, **MACEDONIA**: PC World Macedonia, **MALAYSIA**: Computerworld Malaysia, PC World Malaysia, Publish in Asia; **MALTA**: PC World Malta; **MEXICO**: Computerworld Mexico, PC World Mexico; **MYANMAR**: PC World Myanmar, **NETHERLANDS**: Computerl Totaal, LAN Internetworking Magazine, LAN World Buyers Guide, Net, Macworld Netherlands, WebWereld, **NEW ZEALAND**: Absolute Beginners Guide and Plain & Simple Series, Computer Buyer, Computer Industry Directory, Computerworld New Zealand, MTB, Network World, PC World New Zealand; **NICARAGUA**: PC World Centro America, **NORWAY**: Computerworld Norge, CW Rapport, Datamagasinet, Financial Rapport, Kursguide Norge, Macworld Norge, Multimediaworld Norway, PC World Ekspress Norge, PC World Nettverk, PC World Norge, PC World ProduktGuide Norge; **PAKISTAN**: Computerworld Pakistan; **PANAMA**: PC World Panama, **PEOPLES REPUBLIC OF CHINA**: China Computer Users, China Computerworld, China InfoWorld, China Telecom World Weekly, Computer & Communication, Electronic Design China, Electronics Today, Electronics Weekly, Game Software, PC World China, Popular Computer Week, Software Weekly, Software World, Telecom World, and online Webzine China Computerworld Daily; **PERU**: Computerworld Peru, PC World Profesional Peru, PC World SoHo Peru; **PHILIPPINES**: Click!, Computerworld Philippines, PC World Philippines, Publish in Asia; **POLAND**: Computerworld Poland, Computerworld Special Report Poland, Cyber, Macworld Poland, Networld Poland, PC World Komputer; **PORTUGAL**: Cerebro/PC World, Computerworld/Correio Informático, Dealer World Portugal, Mac*In/PC*In Portugal, Multimedia World; **PUERTO RICO**: PC World Puerto Rico; **ROMANIA**: Computerworld Romania, PC World Romania, Telecom Romania, **RUSSIA**: Computerworld Russia, Mir PK, Publish, Seti; **SINGAPORE**: Computerworld Singapore, PC World Singapore, Publish in Asia; **SLOVENIA**: Monitor; **SOUTH AFRICA**: Computing SA, Network World SA, Software World SA, **SPAIN**: Communicaciones World España, Computerworld España, Dealer World España, Macworld España, PC World España, Sri Lanka: Infolink PC World; **SWEDEN**: CAP&Design, Computer Sweden, Corporate Computing Sweden, Internetworld Sweden, it.branschen, Macworld Sweden, MaxiData Sweden, MikroDatorn, Nätverk & Kommunikation, PC World Sweden, PCaktiv, Windows World Sweden; **SWITZERLAND**: Computerworld Schweiz, Macworld Schweiz, PCtip, **TAIWAN**: Computerworld Taiwan, Macworld Taiwan, NEW ViSiON/Publish, PC World Taiwan, Windows World Taiwan; **THAILAND**: Publish in Asia, Thai Computerworld, **TURKEY**: Computerworld Turkiye, Macworld Turkiye, Network World Turkiye, PC World Turkiye, **UKRAINE**: Computerworld Kiev, Multimedia World Ukraine, PC World Ukraine, **UNITED KINGDOM**: Acorn User UK, Amiga Action UK, Amiga Computing UK, Apple Talk UK, Computing, Macworld, Parents and Computers UK, PC Advisor, PC Home, PSX Pro, The WEB, **UNITED STATES**: Cable in the Classroom, CIO Magazine, Computerworld, DOS World, Federal Computer Week, GamePro Magazine, InfoWorld, I-Way, Macworld, Network World, PC Games, PC World, Publish, Video Event, THE WEB Magazine, and WebMaster, online Webzines JavaWorld, NetscapeWorld, and SunWorld Online, **URUGUAY**: InfoWorld Uruguay, **VENEZUELA**: Computerworld Venezuela, PC World Venezuela, and **VIETNAM**: PC World Vietnam.

C O M P U T I N G W I T H O U T L I M I T S™

If Your Memory Fails Who Cares What's On Your PowerBook?

Your screenplay. Your stock portfolio. Images from your trip to the Himalayas. There's a lot of valuable stuff on your PowerBook. So why not use the finest components to preserve it? Kingston® memory. At Kingston, we test every cell on every chip on every module. (On a 16 megabyte module, that's 128 million cells.) Since every PowerBook has its own unique memory requirements, we design and test each module specifically for the model in which it will be used. Together, these grueling procedures have helped us become a select Authorized Apple RAM Developer. To find the specific Kingston memory for your PowerBook, just call (800) 259-8965. And before you put anything else on your PowerBook, be sure to put in some Kingston memory.



Kingston® TECHNOLOGY

For more information call us at **(800) 259-8965** ISO 9001 SGS *Visit our Web site: http://www.kingston.com/mw.htm*

Kingston Technology Company, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2600, Fax (714) 435-2699. © 1996 Kingston Technology Company.
Kingston is a registered trademark and Computing Without Limits is a trademark of Kingston Technology Company. All rights reserved. All other trademarks are the property of their respective owners.
PowerBook is a registered trademark of Apple Computer, Inc

Circle 201 on reader service card

See Us At The Macworld Expo Booth# 5643

You Decide

When you're on the road, space and weight are critical for an easy trip. So is having a secure system. You could use floppies to back up your data — lots of them — but suddenly you're no longer mobile (not to mention that they aren't very reliable).

Or, you could use VST's Zip100 drive. Each Zip disk offers 100MB of removable storage, and holds the equivalent of 70 floppy diskettes. Zip also offers speed suitable for multimedia presentations, the ability to hot-swap devices, and can be used as a boot device as well.

The decision is ultimately yours — piece of mind and greatly increased storage with the VST Zip100, or using several hundred floppies (and perhaps hiring a sherpa to carry them). If only all decisions in life were this easy!

VST Zip100 -- In a word, amazing.

ClubMac® 1-800-258-2622

MV02 The Mac Zone 1-800-248-0800

MacMall 1-800-222-2808

MacConnection 800-998-0040

MacWAREHOUSE 1-800-255-6227

VST iomega & Me

Zip by and check us out @ the Bayside Expo Center, Booth #1338

• Zip Drive for PowerBooks • Shipping Quarter 3, 1997

125 Nagog Park • Acton, Massachusetts 01720

(508) 263-9700 • Fax (508) 263-9876 • http://www.vsttech.com

Iomega, the Iomega logo, and Zip are trademarks of Iomega Corporation. All other trademarks are property of their respective holders.

Circle 73 on reader service card

Macworld

EDITOR IN CHIEF — Adrian Mello

EDITORIAL

EXECUTIVE EDITORS — Galen Gruman, Carol Person
DIRECTOR OF EDITORIAL OPERATIONS — Jane Lagas
SENIOR EDITOR/FEATURES — Howard Baldwin
SENIOR ASSOCIATE EDITOR/NEWS — Stephen Beale
SENIOR ASSOCIATE EDITOR/REVIEWS — Anita Epler
SENIOR ASSOCIATE EDITORS — Cathy E. Abes, Elizabeth Dougherty, Tova Fliegel
ASSOCIATE EDITORS — Linda Comer, Suzanne Courteau, Cameron Crotty, Katherine L. Ulrich
ASSISTANT EDITORS — Allyson Bates, Keith A. Mitchell
OFFICE MANAGER — Dehorah Weinberger
ADMINISTRATIVE ASSISTANT — Andrea Dudrow
ASSISTANT TO THE EDITOR IN CHIEF — Patricia Carberry-Harris
CONTRIBUTING EDITORS — Mel Beckman, Robert C. Eckhardt, Erfert Fenton, Jim Heid, Steven Levy, Cary Lu, Deke McClelland, Tom Negrino, David Pogue, Lon Poole, Steve Roth, Joseph Schorr, Charles Seiter, Franklin N. Tessler
INTERNATIONAL EDITORS — Matthew JC. Powell, Australia; Martin Jorgensen, Denmark; Jean-Philippe Dubrun, France; Andreas Borchert, Germany; Enrico Lotti, Italy; Shohei Nishida, Japan; Gert Jan Oelderik, Netherlands; Tom Helge Berglie, Norway; Carlos Perez, Spain; Lennart Hakansson, Sweden; Cuno Schneeberger, Switzerland; Bahattin Apak, Turkey; Simon Jary, United Kingdom

LAB

LAB DIRECTOR — Lauren L. Black
SENIOR TECHNICAL ANALYSTS — Matt Clark, Mark Hurlow, Jeff Sacilotto
INVENTORY CONTROLLER — Paul Brown

COPY EDIT AND EDITORIAL PRODUCTION

MANAGING EDITOR — Ruth Henrich
SENIOR COPY EDITOR — Paul-Michael King
SENIOR PRODUCTION EDITOR — Lisa Brazieal
COPY EDITORS — Gail E. Nelson, Elissa Rabellino
PRODUCTION EDITOR — Jackie Goodman

ART AND DESIGN

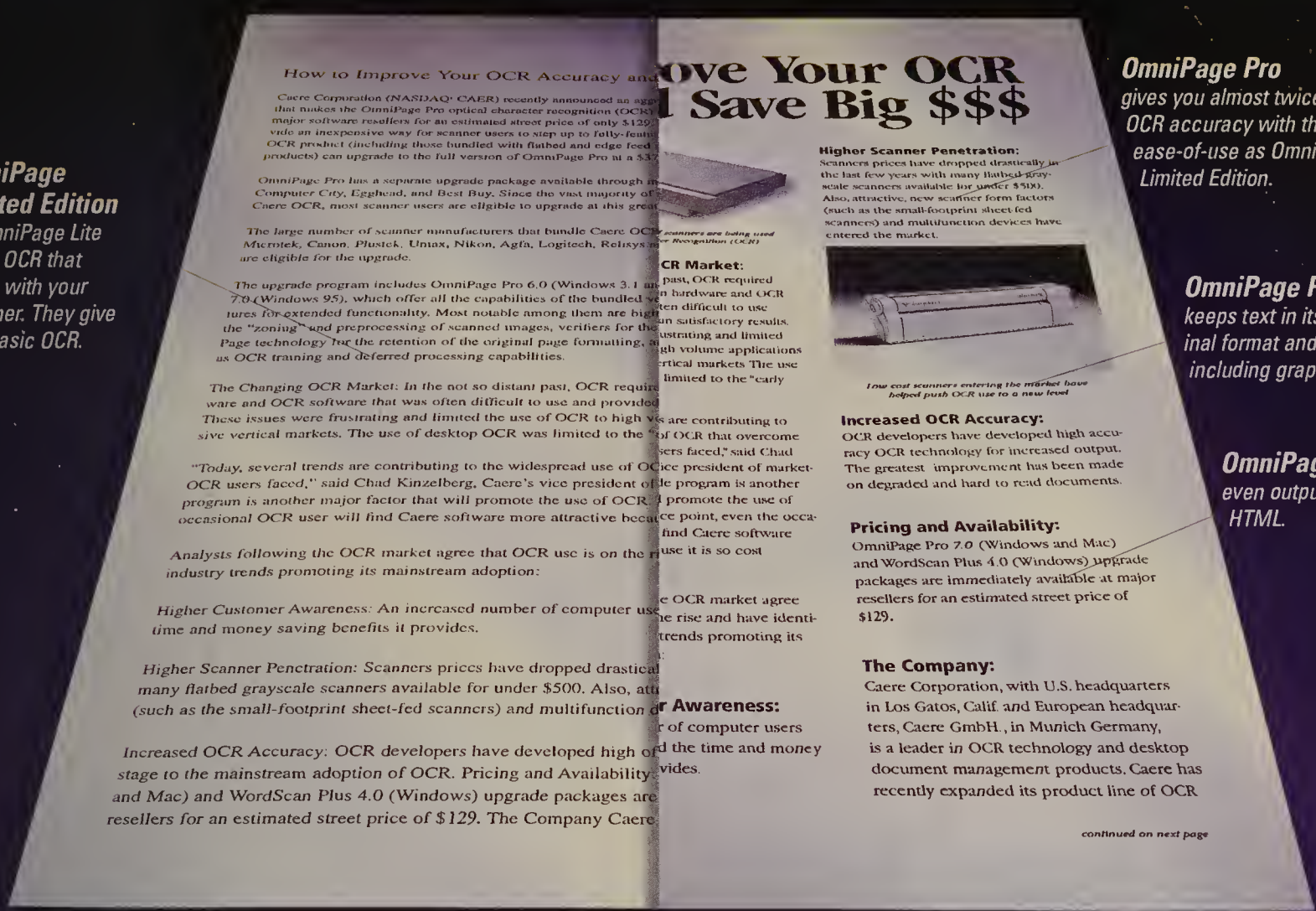
DESIGN DIRECTOR — Leslie Barton
ART DIRECTOR — Joanne Hoffman
DESIGNER — Tim Johnson
ASSOCIATE ART DIRECTOR — Sylvia Chevrier
ASSOCIATE DESIGNER — Martha Katt
SENIOR DESIGN ASSOCIATE — Belinda Chlouber
DESIGN ASSOCIATE — Aimée Lennig

ONLINE

MANAGER, ONLINE — Paul Devine
DIRECTOR OF ONLINE DEVELOPMENT — Jeff Julian
CIRCULATION MANAGER — Elizabeth Jensen
NATIONAL ACCOUNTS MANAGER — Ed Ramirez
ONLINE ACCOUNTS MANAGER — Nicholas Harvey
MEDIA COORDINATOR — Jamila Johnson
DESIGN DIRECTOR, ONLINE — Arne Hurty
WEB ADMINISTRATOR — Chip Carman
ONLINE PRODUCER/EDITOR — Karen Liberatore
CONTENT ENGINEER — Caius van Nouhuys
ONLINE CONTENT PRODUCER — Matt McAlister
ONLINE PRODUCTION EDITOR — Roxanne Gentile
ASSISTANT CONTENT ENGINEER — Jessica Graves

New OmniPage Pro 7.0 gives you the recognition you deserve.

OmniPage Limited Edition *or OmniPage Lite is the OCR that came with your scanner. They give you basic OCR.*



How to Improve Your OCR Accuracy and

Caere Corporation (NASDAQ: CAER) recently announced an agg
that makes the OmniPage Pro optical character recognition (OCR)
major software resellers for an estimated street price of only $129
vide an inexpensive way for scanner users to step up to fully-featu
OCR product (including those bundled with flatbed and edge feed
products) can upgrade to the full version of OmniPage Pro at a $37

OmniPage Pro has a separate upgrade package available through th
Computer City, Egghead, and Best Buy. Since the vast majority of
Caere OCR, most scanner users are eligible to upgrade at this great

The large number of scanner manufacturers that bundle Caere OC
Microtek, Canon, Plustek, Umax, Nikon, Agfa, Logitech, Relisys
are eligible for the upgrade.

The upgrade program includes OmniPage Pro 6.0 (Windows 3.1 an
7.0 (Windows 95), which offer all the capabilities of the bundled ve
tures for extended functionality. Most notable among them are bigg
the "zoning" and preprocessing of scanned images, verifiers for the
Page technology for the retention of the original page formatting, a
as OCR training and deferred processing capabilities.

The Changing OCR Market: In the not so distant past, OCR requir
ware and OCR software that was often difficult to use and provided
These issues were frustrating and limited the use of OCR to high v
sive vertical markets. The use of desktop OCR was limited to the "

"Today, several trends are contributing to the widespread use of OC
OCR users faced," said Chad Kinzelberg, Caere's vice president of
program is another major factor that will promote the use of OCR.
occasional OCR user will find Caere software more attractive becau

Analysts following the OCR market agree that OCR use is on the r
industry trends promoting its mainstream adoption:

Higher Customer Awareness: An increased number of computer use
time and money saving benefits it provides.

Higher Scanner Penetration: Scanners prices have dropped drastical
many flatbed grayscale scanners available for under $500. Also, att
(such as the small-footprint sheet-fed scanners) and multifunction d

Increased OCR Accuracy: OCR developers have developed high of
stage to the mainstream adoption of OCR. Pricing and Availability:
and Mac) and WordScan Plus 4.0 (Windows) upgrade packages are
resellers for an estimated street price of $129. The Company Caere

ove Your OCR
l Save Big $$$

y scanners are being used
r Recognition (OCR)

CR Market:
past, OCR required
n hardware and OCR
ten difficult to use
un satisfactory results.
ustrating and limited
gh volume applications
rtical markets The use
limited to the "early

s are contributing to
of OCR that overcome
sers faced," said Chad
ice president of market-
le program is another
promote the use of
ce point, even the occa-
find Caere software
use it is so cost

e OCR market agree
e rise and have identi-
trends promoting its

r Awareness:
of computer users
d the time and money
vides.

Higher Scanner Penetration:
Scanners prices have dropped drastically in the last few years with many flatbed gray-scale scanners available for under $500. Also, attractive, new scanner form factors (such as the small-footprint sheet-fed scanners) and multifunction devices have entered the market.

Low cost scanners entering the market have helped push OCR use to a new level

Increased OCR Accuracy:
OCR developers have developed high accuracy OCR technology for increased output. The greatest improvement has been made on degraded and hard to read documents.

Pricing and Availability:
OmniPage Pro 7.0 (Windows and Mac) and WordScan Plus 4.0 (Windows) upgrade packages are immediately available at major resellers for an estimated street price of $129.

The Company:
Caere Corporation, with U.S. headquarters in Los Gatos, Calif. and European headquarters, Caere GmbH., in Munich Germany, is a leader in OCR technology and desktop document management products. Caere has recently expanded its product line of OCR

continued on next page

OmniPage Pro *gives you almost twice the OCR accuracy with the same ease-of-use as OmniPage Limited Edition.*

OmniPage Pro *keeps text in its original format and layout, including graphics.*

OmniPage Pro *even outputs to HTML.*

OmniPage Limited Edition

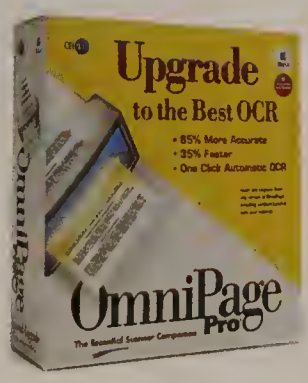
OmniPage Pro

Upgrade now to faster, more accurate OCR.

Sure, the OmniPage Limited Edition OCR that came with your scanner is good. In fact, that's why scanner makers like HP, Microtek and Agfa chose it above all others.

But if you want greater accuracy, full-throttle speed and a ton of new time-saving features, then it's time you moved up to OmniPage Pro®.

OmniPage Pro employs a new, more powerful OCR engine to recognize poor copies and degraded faxes.



It integrates seamlessly with your favorite applications like Word, ClarisWorks and more. It even guides you through the OCR process using its AutoOCR Toolbar. All with the simple push of a button.

What's more, you get the advantages of the world's most popular OCR software without learning an entirely new program. So make sure you're getting all the OCR power and accuracy you deserve. Call now to upgrade, or visit a local reseller.

caere®

www.caere.com

Key Feature Comparison	OmniPage Pro	OmniPage Limited Edition
Caere's fastest and most accurate OCR engine	✔	
AutoOCR Toolbar™ for easy, one-button OCR processing	✔	
Apple Guide gives you on-screen interactive help	✔	
Preserves graphics in output text	✔	
OCR from within your favorite applications	✔	✔
Retains original layout	✔	

SPECIAL UPGRADE

$129* CALL TODAY TO ORDER! **800-736-5735** extension 80

Accelerated for Power Macintosh · Mac OS · MW ★★★★ JUNE 1994 · MacUser ★★★★ JUNE 1994 · MacWEEK ★★★★ AUGUST 1994

*Suggested price US $ subject to change. Valid in US & Canada only. Caere, the Caere logo and OmniPage Pro are registered trademarks and AutoOCR Toolbar is a trademark of Caere Corporation. © 1996. All other names are the property of their respective holders.

Circle 69 on reader service card

NEW!
OrangePC 530
For ALL-IN-ONE
Macintosh 5400/5500

PC Applications Driving You Bananas?

Put OrangePC® in Your Apple

Sometimes, to keep from going bananas, you must run a PC application on your Mac. The OrangePC® is an expansion card which allows you to run both Mac and PC programs simultaneously. It magically transforms your Apple into a dual computer platform which can support Windows®NT, NeXT® OPENSTEP®, Windows®95, Windows® 3.1 or DOS. It makes thousands of PC applications compatible with your Macintosh system.

If you have a PCI based Performa (7" expansion slot), a full-sized PCI Power Macintosh compatible (12" slot) or a NuBus based Quadra, there's an OrangePC solution that's right for you. Whether you are budget sensitive, or performance hungry, you may select a processor from the low-cost Intel®486 up to our exclusive Intel MMX Pentium® 200MHz.

And, the OrangePC is affordable, with prices starting at $499.

The technical stuff: OrangePC models come in 7" or 12" PCI, and NuBus card types; up to 5x86 133MHz or up to MMX Pentium 200MHz; RAM from 8 to 256MB on board; up to 256K pipeline burst L2 cache; parallel port (for those delightful PC dongles); 2 high speed serial ports; 16 bit Sound Blaster® compatible In/Out; game port; one or two MB of video DRAM.

Call us today, and put an OrangePC in your Apple.

Orange Micro® inc.

"17 Years of Innovation and Excellence"
1400 N. Lakeview Ave., Anaheim, CA 92807
(714) 779-2772 www.orangemicro.com

See us at Macworld Expo Booth #5239
Circle 33 on reader service card

© Orange Micro, Inc., 1997

Macworld

DISPLAY ADVERTISING SALES

PUBLISHER	Matt Sweeney (415/978-3271)
NATIONAL SALES DIRECTOR	Steve Plevin (415/978-3138)
SALES DEPARTMENT ADMINISTRATOR	Eva Bosch (415/974-7310)
SALES/MARKETING COORDINATOR	Glenn Munlawin (415/974-7350)
WESTERN ADVERTISING DIRECTOR	Karl Elken (415/978-3155)
ACCOUNT EXECUTIVE	Christine Wong (415/978-3192)
NATIONAL ACCOUNTS MANAGER	Liz Pabón (415/978-3257)
SALES ASSOCIATE	Jessica Ross (415/267-1799)
ADMINISTRATIVE ASSISTANT	Tobin Duisenberg (415/975-2619)
NATIONAL ACCOUNTS MANAGER	Sara Culley (310/545-0646)
SALES ASSOCIATE	Margaret Level Green (415/267-4577)
EASTERN ADVERTISING DIRECTOR	Cynthia Ramsey (201/243-1197)
NATIONAL ACCOUNTS MANAGER	Paul Bonarrigo (508/370-0832)
NATIONAL ACCOUNTS MANAGER	Lisa Ladle-Wallace (800/779-5622)
ACCOUNT EXECUTIVE	Kathy Poppenhagen (847/398-8141)

CLASSIFIED ADVERTISING SALES

MACWORLD SHOPPER AND DIRECTORY	Niki Stranz (415/978-3105), Carol Johnstone (415/978-3152), Shannon Smith (415/974-7414)
ADMINISTRATIVE ASSISTANT	Nancy Galanty (415/978-3124)

RESEARCH

RESEARCH DIRECTOR	Linda Lawrence
SENIOR RESEARCH ANALYST	Phillip Hibbert
INTERNET RESEARCH ANALYST	Scott Petersen

TRADE SHOWS AND EVENTS

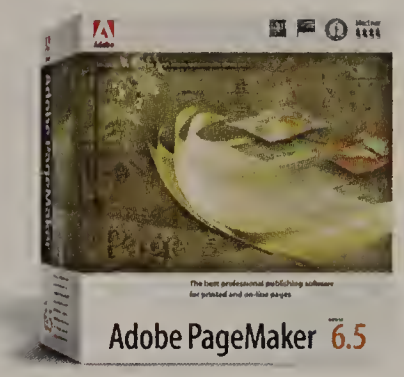
SENIOR TRADE SHOW/EVENTS MANAGER	Anna Noetzel
TRADE SHOW/EVENTS COORDINATOR	Marjorie Maggenti

CIRCULATION

VICE PRESIDENT/DIRECTOR OF CIRCULATION	Angelina Beitia
SINGLE-COPY SALES DIRECTOR	George Clark
SUBSCRIPTION DIRECTOR	Lori Hitchcock
CIRCULATION MANAGER	Barbara Besser
NEWSSTAND SALES MANAGER	Martin Garchar
DIRECT-MARKETING MANAGER	Kelvin Gee
NEWSSTAND COORDINATOR	Dalia Schwartz
SUBSCRIPTION COORDINATOR	Tom Porcella
PROMOTIONS COORDINATOR	Peter Ho
SUBSCRIPTION INQUIRIES	800/288-6848

PRODUCTION

VICE PRESIDENT/DIRECTOR OF MANUFACTURING	Anne Foley
PRODUCTION MANAGER	Cynthia Neustadt
ASSISTANT PRODUCTION MANAGER	David W. McAferty
DTP COORDINATOR	Clayton Haberman
BILLING INFORMATION MANAGER	So Fong Yip
BILLING ASSISTANT	Lily Cheung



PUT IT IN PRINT, PUT IT ONLINE, PUT IT ALL TOGETHER

to make your ideas stand out.

If you're not already using Adobe® PageMaker® 6.5 you should really take a look at it. Because only PageMaker 6.5 has direct-to-HTML and PDF export *built right in*—to take your documents out to the Web and everywhere else. With Photoshop®-style layers, optional text and graphics frames, and automatic reformatting. With a broader range of color libraries and powerful color management tools. And with the same intuitive drag-and-drop interface and common keyboard commands you're already using with Adobe Photoshop and Illustrator.® Whether you're on Macintosh,® Windows® 95, or even Windows NT,® PageMaker 6.5 can help your ideas stand out—in print and beyond.

TAKE A LOOK FOR YOURSELF. OUR *FREE* CD "IT'S TIME TO TRY ADOBE PAGEMAKER" HAS EVERYTHING YOU NEED TO GET STARTED.

For your own copy, just call 800 422-3623. You'll like what you see.

http://www.adobe.com

Source Code 34003

Adobe, the Adobe logo, PageMaker, Photoshop, and Illustrator are registered trademarks of Adobe Systems Incorporated. Macintosh is a registered trademark of Apple Computer, Inc. Windows and Windows NT are registered trademarks of Microsoft Corporation.

© 1997 Adobe Systems Incorporated. All rights reserved.

Adobe

See Us At The Macworld Expo Booth#5434

Circle 251 on reader service card

Circle 22 on reader service card

See us at Macworld Expo Booth #1324

Macworld

HOW TO CONTACT MACWORLD

Subscription Questions

Phone	Mainland USA 800/288-6848
	All other locations 303/604-1465
Fax	303/604-7644
U.S. Mail	Subscription Services
	P.O. Box 54529, Boulder, CO 80328-4529
America Online	Keyword *Macworld*
WWW	*http://www.macworld.com/community/sub.services.html*
E-mail	*subhelp.macworld@neodata.com*

Macworld Club Questions

Phone	U.S. and Canada 800/895-9545

Reprints and Permissions

You must have permission before reproducing any material from *Macworld*. Write to *Macworld*, Reprints and Permissions, 501 Second St., San Francisco, CA 94107; include a phone number. To order reprints of your company's editorial coverage in *Macworld*, call 800/217-7874.

Back Issues of Macworld

Back issues are $7 per issue for U.S. delivery ($12 overseas); prepayment in U.S. funds is required. Make checks or money orders payable to Macworld Magazine and mail along with a written request to Macworld Back Issues, c/o Snyder Newell, P.O. Box 7046, San Francisco, CA 94120-9727. Readers can obtain newsstand premiums by mailing a check for $2.95 (shipping and handling) to Macworld Communications, Newsstand Promotion, 501 Second St., San Francisco, CA 94107. Important: Please state CD title and issue, and include shipping name and address.

Macworld in Microfilm

Macworld is available on microfilm and microfiche from UMI, 300 N Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

Macworld Editorial

Our offices are located at 501 Second St., San Francisco, CA 94107; 415/243-0505, fax 415/442-0766. E-mail: *macworld@macworld.com*.

Readers can contact editors directly via the Macworld forum on America Online (keyword *Macworld*) or Macworld Online's Web site (*http://www.macworld.com*).

LETTERS TO THE EDITOR Direct all comments, questions, and suggestions regarding any aspect of the magazine to *letters@macworld.com*. All mail is read by our editor, but due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all submissions. All letters published in *Macworld* or Macworld Online become the property of *Macworld*.

QUICK TIPS Send your questions or tips on how to use Mac computers, peripherals, or software to the attention of *Quick Tips*, Lon Poole, or e-mail them to *quicktips@macworld.com*. Please include your name, address, and telephone number.

BUGS AND TURKEYS Send descriptions of turkeys (flaws in conception or design) and bugs (defects or flaws in execution) with your telephone number, mailing address, and T-shirt size to the magazine via *letters@macworld.com*. Due to the high volume of reported bugs and turkeys, we can't personally solve or advise on reported conflicts.

WRITING FOR MACWORLD If you're interested in writing for us, send a self-addressed, stamped envelope with a request for our writer's guidelines. Do not send unsolicited manuscripts.

FOUNDER David Bunnell

FOUNDING EDITOR Andrew Fluegelman 1943–1985

Macworld is a publication of Macworld Communications, Inc. *Macworld* is an independent journal not affiliated with Apple Computer, Inc. *Macworld, Macworld Interactive, Macworld Shopper, MW, MW Lab, MW Shopper, The Desktop Critic, Expert Graphics, Quick Tips, Star Ratings, Buyers Tools, Streetwise Shopper,* and *Conspicuous Consumer* are registered trademarks of International Data Group, Inc. *Power PC World* and *Secrets* are trademarks of IDG, Inc. APPLE, the APPLE LOGO, MAC, and MACINTOSH are registered trademarks, and MACLETTER and POWERBOOK are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 1997 Macworld Communications, Inc. All rights reserved. *Macworld* is a member of IDG Communications, the world's largest publisher of computer-related information.

BPA IDG

Approachable. Simply drag-and-drop behaviors directly onto objects.

The Web

Powerful. Streaming Shockwave™ movies play as they download.

urban feedback

can't make a move without it.

Flexible. Author live on the Internet.

THE LAST RESORT

The new Director™ 6.

Shocking. Shocked CDs link and update from the Web.

To order or for more info:
1-800-242-1167 • http://special.macromedia.com/d6

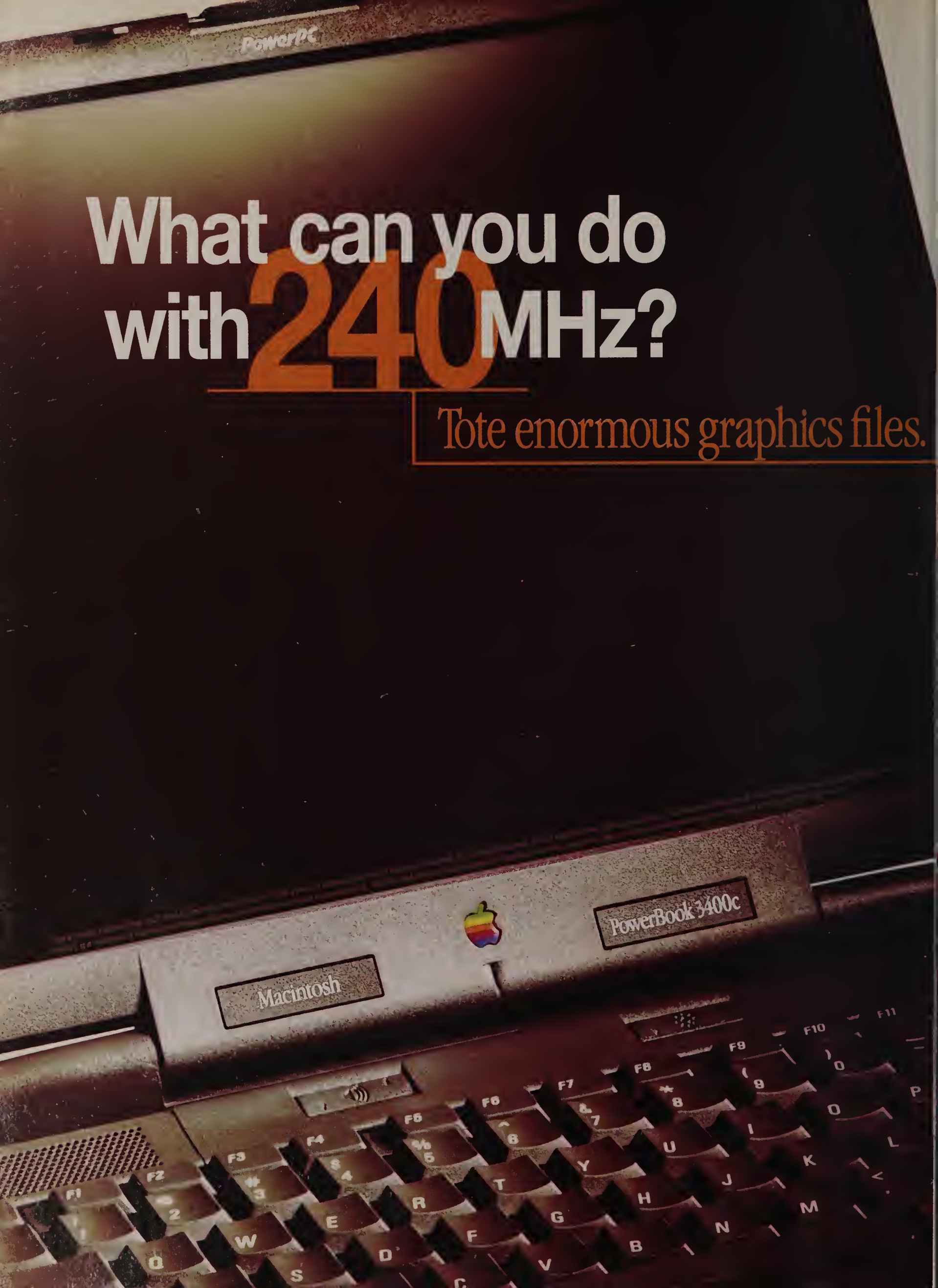
macromedia

Circle 37 on reader service card.

© '97 Macromedia, Inc. All rights reserved. Macromedia, the Macromedia logo, Director, and Shockwave are trademarks or registered trademarks of Macromedia, Inc.
Urban Interactive. "Urban Feedback" by Research Studios.

What can you do with 240 MHz?

Tote enormous graphics files.



Here are even more ways to do more. Send e-mail, surf the web and play CD-ROMs with our best-selling PowerBook 1400. Or, if you want to do more without carrying more, the new PowerBook 2400c packs 180 MHz into just over four pounds.*

Incite rubbernecking.

Run your own in-flight movie.

We didn't build the world's fastest laptop just to show off. But that's not to say you can't. Among its numerous talents, the PowerBook® 3400 is the ideal laptop for presentations. Its awesome speed means faster, more beautiful graphics, and its 12.1-inch diagonal screen is the perfect canvas to display your genius for persuasion.

But don't let the 3400's blinding speed blind you to its other features. Like its hot-swappable expansion bay. It lets you add all manner of drives, whether floppy, magneto-optical, CD-ROM or a second hard drive. All without putting your computer to sleep. To keep you connected, there are also built-in Ethernet/33.6 Kbps modem capabilities.

At the risk of sounding immodest, there's no end to what you can do with the new PowerBook 3400. To learn more, visit www.powerbook.apple.com. Or call 800-538-9696 for the name of the Apple reseller nearest you.

We're
NEGATIVE & POSITIVE
NEiT IDEA!

See XANTÉ's Complete Product Line at MACWORLD Expo/Boston!
Booth #1506 • Bayside Expo Center • Boston, MA
August 6-8, 1997

Accel-a-Writer® 8300

It's Not Just A Laser Printer Any More . . .

In addition to high resolution, high performance printing, proofing, and camera-ready output, XANTÉ®'s award winning Accel-a-Writer® 8300 now allows you to print direct-to-film. With XANTÉ's new patent-pending Negative Enhanced Imaging Technology, or NEIT, you can now print clear, crisp negatives and positives on plain paper or film from the same device. Nothing like it has ever been available before –

WHAT A NEIT IDEA!

- Negative & Positive Output with NEIT (Negative Enhanced Imaging Technology)
- Oversized 11" x 17" Printing
- 600 dpi upgradeable to 1200 dpi
- True Adobe PostScript Level 2
- XANTÉ Accurate Calibration Technology (X-ACT)
- Halftone Calibration and Linearization
- And Much More!

Adobe PostScript

Call 800-926-8839
Ext. 2138
Dealers Call Ext. 2139 • Fax 334-342-3345
www.xante.com

Optional on-site service provided by XANTÉ in partnership with Olivetti North America
olivetti

AT&T Capital Corporation

From computer to Accel-a-Writer 8300 to film, XANTÉ's FilmStar offers you the fastest way to process high quality film from your desktop.

FilmStar™

No Camera.
No Darkroom.
No Hazardous Chemicals.

XANTÉ
Innovations In Output

© 1997 XANTÉ CORPORATION. XANTÉ, Accel-a-Writer, FilmStar and X-ACT are trademarks or registered trademarks of XANTÉ CORPORATION. Adobe, PostScript, and the PostScript logo are trademarks of Adobe Systems, Inc. which may be registered in certain jurisdictions. Other brands and product names are trademarks or registered trademarks of their respective holders. XANTÉ CORPORATION 4621 Spring Hill Ave., Mobile, AL 36608. Post Office Box 16526, Mobile, AL 36616-0526 USA, Tel. 334-342-4840.

Circle 112 on reader service card

Macworld

IT'S LIKE GETTING 7 FREE ISSUES

❑ **YES! Send me Macworld and my FREE Macworld Clip Art CD.** I'll pay only $24.00 for 12 monthly issues — 60% off the annual newsstand rate, the equivalent of 7 FREE issues. Also, please rush my FREE Clip Art CD.

NAME

COMPANY

ADDRESS

CITY/STATE/ZIP

E-MAIL

Check us out at www.macworld.com

Please allow 6-8 weeks for delivery of your first issue. Savings based on annual cover price of $59.88. Foreign orders add $70 postage. Canadian and Mexican orders add $18 USD per subscription for postage.

4FQW2

FREE Clip Art CD

Macworld's exclusive Clip Art CD is loaded with clip art images, digital stock photos and fonts! Send for your Clip Art CD now!

Rush my
FREE Clip Art CD!

NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 1167 BOULDER CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld
SUBSCRIPTION DEPARTMENT
PO BOX 51666
BOULDER CO 80323-1666

Letters

If an Apple Tree Falls in the Forest . . .

REGARDING THE JUNE 1997 *STATE OF the Mac* column on Apple's future: If Apple were to make its hardware side even marginally profitable, there would be no reason to phase it out; why eliminate a good thing? Second, I believe that Apple defines the standard the clone makers must live up to; that is, Apple really is good at hardware.

I do agree that Apple has poor marketing; compared with the flood of bright advertisements for "Intel Inside," Apple's ads are weak, ineffective, and sparse. Rather than resort to eliminating the hardware side, Apple needs to focus on effective advertising and marketing.

For example, most Wintel supporters are convinced that the Pentium line is the ultimate processor, but I've seen articles in your publication and in others that show the Apple PowerPC to be faster than the Pentium or Pentium II. Apple is evidently reluctant to disseminate this fact. Since Apple's software is superb, its machines are good, and the two platforms' prices are now comparable, the only thing lacking is getting the word out. With better advertising, Apple could regain and hold a sizable market share, and could even push its way back to the forefront of the personal computer industry.

JOHN P. GOETZ
via Macworld Online

Apple: Doing the Right Thing

I THINK APPLE HAS BECOME TOO DIvergent and made the decision to license its operating system too late. But I also think that any organization that has been on a downward slide for too long requires drastic changes ("Amelio Carves a New Apple," *News*, June 1997). While I'm sure this is not a happy time for those who will no longer be working at Apple, one undeniable fact must be acknowledged: the management and staff at Apple simply weren't operating in a successful manner anymore. Business endeavors can be likened to war, and Apple hasn't been winning. When an organization is not winning, changing personnel is often integral to changing plans.

Apple has some unique strengths that have allowed it to achieve a significant level of success in the face of what are commonly acknowledged as industry standards. Reprioritizing its energies and efforts based on those strengths is Apple's best course of action. I'm reminded of a quote that seems appropriate here: "The definition of stupidity is doing the same thing you've always done and expecting different results."

Apple's playing it smart.

MATTHEW HARDY
Baltimore, Maryland

JEFF NEUMANN

A History Lesson about Clones

THREE MONTHS AGO I SENT YOU the following message: "I am happy to see Power Computing doing well, but hype, speed, and a sharp price come with an additional tag. Very often that tag does not show up until history is recorded. Apple, apart from some PowerBook hiccups, can claim a very good track record of dependable machines. I'd rather have a machine with three stars that keep on shining than one with four that fade out after a moment's use. It is your responsibility to give sufficient attention to dependability and consumer satisfaction."

Today I read "Mac Clones: Probing the Risks" (June 1997). It was exactly what I was waiting for. Thank you! And I'm happy to report that I am positively impressed with the quality of the clones.

JAAP FEENSTRA
Rae-Edzo, Northwest Territories, Canada

The Computer for a Few of Us

IF THE KIND OF ASTUTE SUMMATION of Apple's pricing structure stated by David Jennings is widely expounded and accepted, there won't be any Apples for any of us (*Letters*, June 97). It is almost axiomatic that the more Apple does right, the louder the criticisms against the company. This continues to plague Apple no matter what it does.

Apple's 20th-anniversary Mac "special" is just that—a special for the people who are not in the "real world," which is where Mr. Jennings has inadvertently placed himself. Hasn't he seen the extraordinary bargains that Apple has recently announced? Even the high-end PowerBooks are cheap compared with other

continues

NEW
VERSION 2.5
MICROSPOT
3D World
+ Designer

Michael Leckman/ A.J. Diamond, Donald Schmit and Company

3D World for Presentations, Animations, QuickTime Movies

+Designer for Interior Design, Architecture, Web Design, CAD, Includes: Lightworks renderer.
Introductory Price: ~~$349~~ **$299**

3D World and **Designer** are sold seperately for: ~~$199~~ **$149 each**

To order any Microspot products:
1-800-622-7568

Other great Microspot Products.

PhotoFix 3.0
Photo Editing **$99**

MacDraft 4.2
2D Drafting **$249**

MacPlot
Large Format Color Plotting/Printing from: **$399**

MICROSPOT

Microspot USA, Inc. (408) 253-2000
Se habla español
Demo copies available - www.microspot.com

Come and see us in Booth #100 at MacWorld Boston, Bayside

Circle 3 on reader service card

CORRECTIONS

- *The PowerBook 2400c CPU is not soldered on the motherboard. It resides on a daughterboard, making upgrades practical ("New Apple Subnotebook Fills Gap,"* News, *July 1997).*
- *Adobe will not bundle its tracing program, Streamline, with Illustrator 7 ("Illustrator's New Face," June 1997).*

machines out there. Give credit where it's due and stop crying "The sky is falling."

Apple should be congratulated for its recent executive decisions, and now it's time to get behind the company. History shows that misplaced and wrongly directed criticisms can lead to disastrous results, and leave us all worse off. Spare us from having to live in a Windows-only world.

ROBIN J. WILLCOURT
Reno, Nevada

Apple is now taking orders for the Twentieth-Anniversary Macintosh, priced at $7500. While still not a bargain, that's better than the $9000 price tag originally expected. Plus, ordering one of these machines is the only way you can get toll-free tech support from Apple—three years' worth is included with the package.—Ed.

The Latest, but Not the Greatest

ALTHOUGH YOUR "THE BEST PERsonal Printers" article is thorough and editorially well considered, a couple of the conclusions do not appear to correlate (June 1997). You "can't recommend the LaserJet 6MP," yet you would "recommend a third printer instead: HP's LaserJet 5MP, a solid, four-star printer." Unless there are differences other than print processing speed (the 6MP's 8 pages per minute and Printer Command Language 6 versus the 5MP's 6 ppm and PCL5) that have come to light since the 6MP has developed a history in the marketplace, I don't understand the relative ranking. Is PCL6 not the enhancement of PCL5 one would expect? Is the industrial-design spec for the 6MP a cheapened version of the 5MP? What exactly are the merits of the 5MP not found in the 6MP?

J. H. KEEN
Toronto, Ontario, Canada

The HP LaserJet 6MP is a solid, three-star product—don't get me wrong. It's just that despite the speed bump and PCL6, the LaserJet 6MP isn't the standout among the competition that the LaserJet 5MP was in our September 1996 "Personal Laser Printers" article. If you can still find a 5MP for sale—new or used in good condition—it could be a very attractive printer indeed. If I were in the market for an inexpensive personal laser and didn't need PCL6, I'd definitely go for a 5MP.—Ed.

No RSI? Be Thankful

YOUR READER KEN BECK WROTE about the possible hype potential of the repetitive strain injury (RSI) and carpal-tunnel disorder cases in this country and how it would be easy to assume it was created for profit (*Letters*, June 1997). I thought the same idea five years ago, until I was diagnosed with RSI in late 1993. I still have not recovered from its crippling effects. I was a Mac expert for a large telecom company here in Southern California and lost my career. I cannot type for more than 30 minutes a day.

I did not think it would happen to me because RSIs only happened to those on the front line: the copywriters, secretaries, and customer-service representatives who were out to collect workers' compensation or get a couple of days off. Now I realize that there are more frontline workers injured with RSI than even the statistics show, because many fear losing their jobs if they report the problem. My heart goes out to them. Since I reported my injuries my life changed 180 degrees.

Mr. Beck is one of the lucky ones.

JAMES BRUCE
Laguna Beach, California

Luckily, it is possible to use your Mac without typing a single word. Check out The Desktop Critic *in the August 1995 issue of* Macworld. *Most of the products mentioned in the article have been updated, but the information is still valid.—Ed.*

Up to Speed with Macworld Lab

WHEN WILL YOUR POWER MAC SYSTEM-performance comparisons use a Power Mac such as the 7500/100 as the comparison system rather than the Centris 650?

CHRIS SANTANA
Andover, Massachusetts

continues

SELECTING THE BEST GRAPHICS PROGRAM JUST BECAME A NO-BRAINER

A mixture of tools so powerful...

we should put asbestos gloves in every box!

CANVAS 5™
Complete Illustration, Photo Editing and Page Design

Stop toying with feeble graphics programs that sap your creative energy. Canvas 5 puts everything you need to realize your artistic vision into one integrated program that's ready to rock the second inspiration hits. • Say goodbye to concentration-zapping "launch and quit" cycles. With Canvas 5, absolutely stunning illustration, photo editing, and page design tools are always right at your fingertips. • In addition, Canvas 5 works with any file (from Photoshop™ to CorelDraw™ to GIF, TIFF, and JPEG) and any Photoshop-compatible plug-in. You also get over 20,000 clip art images and 2,000 premium URW™ fonts. • Simple, flexible, and relentlessly versatile, Canvas 5 is an industrial-strength graphics tool. So what are you waiting for? Put the awesome power of Canvas 5 under your creative control today.

See Us At The Macworld Expo Booth# 5111

If you already own a graphics application, trade up to Canvas 5 for just $149.95. See your favorite reseller, or visit us at **www.deneba.com** for complete product information and secure online ordering. For a Canvas 5 dealer near you, or to order by phone, call **1-800-6 CANVAS** or **305-596-5644.**

©1997 Deneba Software. Canvas is a trademark of Deneba Software. All other company names, product names, trademarks and registered trademarks are the property of their respective holders. Limited time offer subject to change without notice.

800.6.CANVAS

Best of BYTE Winner Best Application Software

MacUser Awards Editors' Choice 1996 Finalist

Windows Magazine WWW

PC Computing ★★★★

DENEBA

Circle 57 on reader service card

CLEMENT MOK
Information Architect
Studio Archetype, Inc.

Clement Mok is an idea guy. As creator of award-winning corporate identities and design solutions for companies like Microsoft, Twentieth Century Fox, Herman Miller, as well as Apple Computer, ideas are the capital of his three companies. Whether he's creating a cyber themepark, compiling tons of stock photos, or designing the elaborate kingdom of Valhalla for the local opera, his ideas need space. Big space. Which is what he gets with the 1 gigabyte Jaz® drive.

So while his office resides in San Francisco's warehouse district, his ideas reside on handy, removable Jaz disks. Check out more of Clement's story at www.4inchsquare.com/mac.

Super-Fast, Extremely Vast
PERSONAL HARD DRIVE.

iomega.

"How I fit 5 Fortune 500 companies, a warehouse full of big ideas, and the entire kingdom of Valhalla into a

4 INCH SQUARE."

BECAUSE IT'S YOUR STUFF.™

Good timing. We've just introduced our new benchmark methodology, called SpeedMark, which uses the Power Mac 7100/80 instead of the Centris. See Mac Superguide, *in this issue.—Ed.*

Closing the Door on OpenDoc

ONE OF THE THINGS THAT MAKE Apple unique is its capacity to think, create, and develop innovative technologies. That's the reason Apple should not kill OpenDoc ("Apple Moves Components to Java," *News*, June 1997).

OpenDoc is a wonderful technology, an innovative and efficient approach to personal computing. The chance of working on documents and objects independent of applications, and the interoperability between the documents and the services supplied by the system, make it an advanced technology and, above all, a true Macintosh technology. It's a perfect system for manipulating ideas and information. OpenDoc should live!

DAVIDE VIGNATI
via Macworld Online, Italy

OpenDoc is a closed issue. Apple has no plans to revive it at this time. But don't despair. While it's true that OpenDoc's hard-core document-centric interface metaphor will not survive, a good bit of OpenDoc's spirit will live on in Rhapsody, Apple's next-generation OS. The Yellow Box, the part of Rhapsody that's based on Next's OpenStep APIs, will also support some embedding of applications, although the details aren't clear.

The Yellow Box is also completely object-oriented, making it easy for developers to create applications by assembling code objects. Also, many services (such as Internet access) will be available globally as part of the system software, and the Yellow Box's extensibility will make it easier to add more global services.—Ed.

Reading Microsoft's Tea Leaves

BRAVO TO DAVID POGUE FOR HIS column "Why Windows Is Doomed" (*The Desktop Critic*, June 1997). For too long the news media, in all their forms, have misrepresented Apple Computer to the general population. Story after story has described Apple's slow demise, and yet here it is, not the powerhouse we all would hope for, but alive and kicking. The simple fact is that the media can do far more damage to Apple through misrepresentation than Apple can do to itself.

Without exception, Windows has enjoyed high praise from the news media. No matter how bad a Microsoft program may be, or even if it fails altogether, it will receive glorious reviews. It is just another example of how biased media can change public perception.

The great irony is that many newspaper and magazine companies in fact use Macs to do layout. Where would these companies be if it weren't for the Mac to help them?

Perhaps in the future the Mac will receive some actual praise from the news media. However, until then, loyal Macintosh users must simply hunker down under the storm of bad publicity.

MARK LUKES
Ogden, Utah

IT'S ABOUT TIME SOMEONE TURNED the tables on the Windows-centric critics who proclaim the Mac to be dead. I thought I was the only one who realized that Microsoft will continue to splinter its market share with each new OS release.

I predict this scenario: The Memphis release of Windows will slip to next summer. Apple's newly focused marketing finally will get customers' attention. Apple will come to a fair agreement with the clone makers. The first CHRP boxes will start rolling out of the factories, and the number of boxes using the Mac OS will increase dramatically.

STEVE CORSELLO
Essex, Connecticut

I hope you're right, Steve—but even then, you know what the popular business press will say, don't you? "Microsoft Aims for Perfection, Delays Windows" . . . "New Apple Marketing Suckers Helpless Users" . . . and "Mac OS Sales Rise Dramatically, Delaying Apple's Inevitable Demise"!—David Pogue m

Letters should be sent to *Letters*, Macworld, 501 Second St., San Francisco, CA 94107; via fax, 415/442-0766; or electronically to CompuServe *(70370,702)*, MCI Mail *(294-8078)*, America Online (keyword *Macworld*), AppleLink *(Macworld1)*, or via the Internet *(letters@macworld.com)*. Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*.

jaz

4-inch, 1 gig Jaz cartridges for as low as $89.95.*

HIGH-PERFORMANCE BACKUP
- Back up one gig in as little as 10 minutes
- Free 1-Step™ backup software backs up as much as 2 gigs (compressed)
- Run your entire system straight from your Jaz® drive to instantly recover from hard disk crashes

HIGH CAPACITY MEETS INSTANT ACCESS
- Run applications and files straight from disk
- Access time: 15.5ms read/17.5ms write
- Average seek time: 10ms read/12ms write
- Sustained transfer rate: 6.62MB/sec. max
- MTBF: 250,000 hrs.

HUGE FILES TO GO
- 1-gigabyte 4-inch disks fit in your pocket
- Portable external drives fit easily in your briefcase—internal drives also available
- Traveller and Jaz Cards make laptop use easy

PC AND MAC COMPATIBLE
- Windows 95, NT, and 3.X, Mac, DOS, OS/2
- IRIX and Solaris also available from Rorke Data

HOW TO CONNECT:
- Jaz Jet™ SCSI PCI $99
- Jaz Jet SCSI ISA $89
- Jaz Traveller (Parallel Port) $49
- Jaz Card (PCMCIA) $125

VISIT WWW.IOMEGA.COM
or see your reseller.

$399 EXTERNAL

*When purchased in 10-packs. Prices listed are estimated street prices. Actual prices may vary. 1-Step and Jet are trademarks of Iomega Corporation. Windows 95 and Windows NT are trademarks of Microsoft Corporation. Mac is a trademark of Apple Computer, Inc. All other trademarks are property of their respective holders.

Introducing Mac OS 8.
Superior performance, Multi-tasking,
Unparalleled customization, Integrated Internet tools
Out of this world.

An operating system so come from Apple.

advanced it could only (Or did it?)

Get ready for a close encounter of the eighth kind. Mac® OS 8 is here. And with it comes a whole new way of working with your Mac OS computer.

Mac OS 8's purpose on this planet is to help you work more productively, and remove the barriers between you and your full potential. And it does this with performance that's out of this world. Thanks to the Mac OS 8 improved multi-tasking Finder™ software, you can accomplish several tasks at once, like opening and copying files without any waiting around. But all this power is nothing without organization. That's why its new unparalleled customization features let you adapt your system to match your individual work style. Spring-open olders, contextual menus and pop-up windows help get you around faster, and are part of a new 3-dimensional look that's even easier to work with. And Mac OS 8 has integrated Internet capabilities. Netscape Navigator™, the PointCast Network, Internet Explorer and a new Internet Setup Assistant are built right in, making it easier than ever to get on the Net, to email, surf or browse the cosmos.* All this lets you work the way you think, so you can be more efficient. It even includes QuickTime® multimedia technology. And to show that Mac OS 8 comes in peace, it can read Windows files, whether you have the original application or not. It's also compatible with your existing Mac applications. Mac OS 8 is designed for 68040 and PowerPC™-based systems, and features reliability improvements that'll have you glad you went with the power of 8.

Intelligent life is out there. And Mac OS 8 is proof.

For your own close encounter with Mac OS 8, visit http://software.apple.com/macos8upgrade for a list of local software resellers or a free demo. Or give us a ring at 1-800-482-6376 ext 1558.

Mac OS

©1997 Claris Corporation. All Rights Reserved. Apple, the Apple logo and Mac are registered trademarks and Finder is a trademark of Apple Computer, Inc. Netscape Navigator is a trademark of Netscape Communications Corporation. PowerPC is a trademark of International Business Machines Corporation, used under license there from. Other product and company names may be trademarks of their respective owners. *ISP required.

What a difference 8 makes.

NEW VERSION!

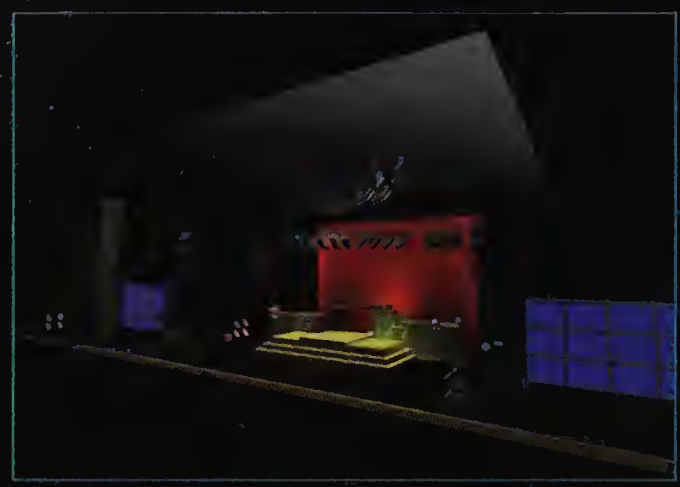
MiniCAD® 7

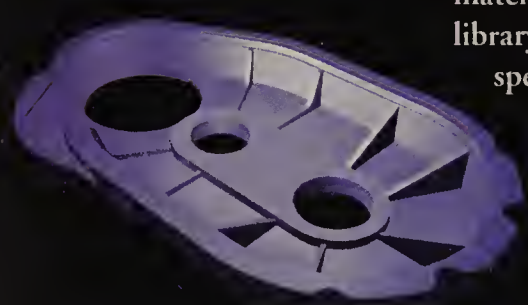
Windows®/Macintosh®

The Easiest, Most Cost-Effective Way to Design

For more than a decade, professionals seeking an out-of-box CAD solution have selected the award-winning MiniCAD. This stand-alone program lets you create everything from precise working drawings to sophisticated client presentations to extensive materials lists and cost estimates.

As always, MiniCAD 7 offers the same core features that have made it the program of choice for design professionals in more than 80 countries—multi-decimal accuracy for precise drafting, a built-in database/spreadsheet to track costs and materials, extensive library of industry-specific symbols, cross-platform compatibility (Mac and Windows), and a macro programming language for automating complex and routine tasks.



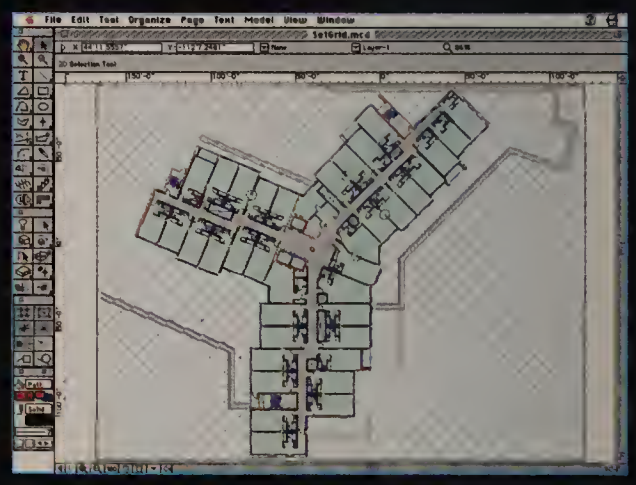


Now this total CAD solution speeds your design process with these new features:

- True 3D Boolean Solid Modeling
- DWG and DXF Import/Export
- Dual-Unit Dimensioning
- Auto Wall Framing
- QuickDraw 3D Rendering
- Associative Hatching
- Automatic Wall Joining
- Next-Generation SmartCursor
- Precise Sun Positioning
- Expression Evaluation Inside Textboxes
- Automated Databases/ Spreadsheets
- Multi-Decimal Dimensioning
- Rotatable Grid and Customizable Coordinate System
- Plus Dozens of Performance and Interface Enhancements

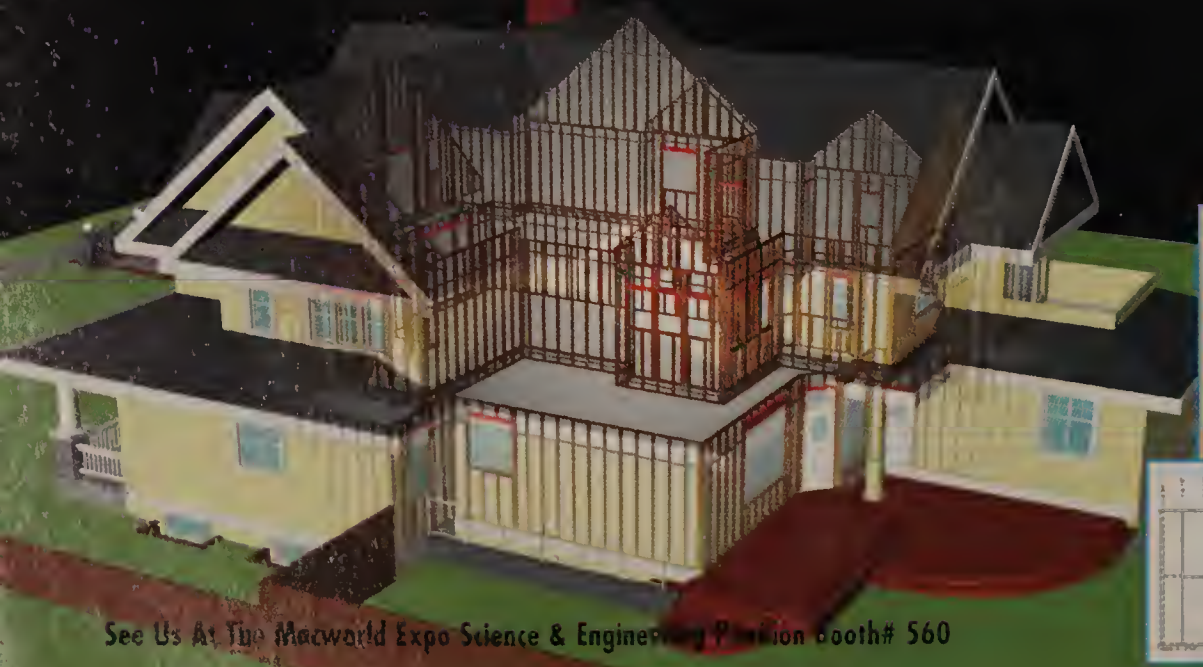
To learn more about MiniCAD's extensive feature set and why the program has been called "the easiest, most cost-effective way to design," visit our Web site (www.diehlgrapsoft.com) or call 1-888-MINICAD.

MiniCAD 7, which retails for a suggested price of $795, comes with 18 months of FREE Tech Support and a 30-Day Money-Back Guarantee!



Circle 46 on reader service card

MiniCAD 7—The only thing small is the price.



See Us At The Macworld Expo Science & Engineering Pavilion booth# 560

Amelio Ousted

Uncertainty on Management, Profitability

by Galen Gruman and Tova Fliegel

Apple Computer took yet another abrupt turn in its quest for financial stability as Gil Amelio was ousted July 9 from his post as chairman and CEO, after nearly a year and a half of trying to revitalize the troubled Macintosh maker.

The resignation came as Apple's board decided Amelio's performance was inadequate, and a week before Apple planned to announce its third fiscal quarter's financial results. Those results were expected to be worse than originally planned because of supply problems that prevented Apple from shipping many of its new Power Macintoshes.

Until a new CEO is named, Fred Anderson, executive vice president and chief financial officer, assumes additional responsibilities for day-to-day operations.

Ellen Hancock, Apple's executive vice president of technology, also resigned. In January, she had said she would remain at Apple as long as Amelio did. Her responsibilities go to Avie Tevanian, senior vice president of software engineering, and Jon Rubinstein, senior vice president of hardware engineering.

Steve Jobs also assumes an expanded role as adviser to the board on product strategy, marketing and sales, and business partnerships. However, he will have no role in Apple's negotiations with Mac OS licensees, who have accused Apple of using the release of Mac OS 8 to force a new and more costly licensing deal (see "Possible Hope in Licensing Fracas," *News*, in this issue).

Forced Exit Although Apple's public announcement billed the departure as a joint decision, Anderson said in a press conference that the "board of Apple is not happy with Apple's financial performance." He credited Amelio for reducing Apple's break-even point and improving product quality, but said, "The fact is that we're not yet on a growth path and we haven't returned the company to sustainable profitability. Apple's board wants to get Apple back on a sustainable growth path."

Anderson said Apple is honoring Amelio's employment contract, which likely includes a hefty severance package. According to a Securities and Exchange Commission document detailing terms of his contract, Amelio will be paid $8 million to $12 million if he is fired "without cause" or resigns "for good reason."

MARCIA LIEBERMAN

Gil Amelio resigned as Apple CEO after the board of directors expressed dissatisfaction with the company's financial performance.

Within Apple, employees complained increasingly in recent months that Amelio was out of touch and uninvolved. Many said they were unsurprised at his departure, which had been rumored for several days before the July 9 announcement.

However, the lack of connection appeared to go both ways. For much of his tenure, many of Amelio's attempts to change Apple's contentious culture seemed to go unheeded by midlevel managers, resulting in a schism over how Apple could end years of failed product initiatives, poor forecasting, and insular thinking.

Pieter Hartsook, a long-time industry analyst, said it was unlikely that Amelio stepped down voluntarily.

"A good time for Gil [to leave] would have been at the release of Rhapsody Premiere," the first version of the new Mac OS, due in early 1998, Hartsook said. "Then he could say that he'd accomplished what he set out to do and that Apple was in pretty good shape. But the fact that he's exiting now means that he's failed in completing the restructuring. . . . That's why I don't think this is mutual."

Hartsook also noted that now may not be the best time for Apple to lose its CEO, since a new CEO will likely want to initiate yet another restructuring. "The last thing Apple needs is a disruption that takes Apple's focus off getting products out the door," he said. "Think about Amelio's first hundred days: basically nothing got done."

Profits on Hold But Hartsook pointed out that Wall Street analysts, the board of directors, and Apple employees have expressed a lack of confidence in Amelio in recent months as reflected by the plunge in Apple's stock price, which hit an 11-year low in early July.

continues

Apple had been predicting a financial turnaround by the end of its fiscal year, which closes September 30. But at the July 9 press conference, Anderson said, "We are out of the business of predicting when the company will return to profitability."

Losses Expected During the week of July 7, First Call, which collects composite estimates from industry analysts, reported that it expected Apple to show a $70 million loss in its third-quarter results, which were to be announced on July 16. Some analysts predicted losses as high as $400 million, and *Macworld* estimated a loss of about $150 million to $200 million. This follows a $708 million second-quarter loss. (See Macworld Daily at *www.macworld.com/daily/* for updated coverage of Apple's financial results and management changes.)

Anderson refused to speculate on potential replacements for Amelio and would not say whether Jobs had been offered the position.

Anderson and Jobs are part of a search team charged with finding a new CEO for Apple. Also involved in the search are Apple board members A. C. Markkula, Jr., and Edgar S. Woolard, Jr. Markkula is an Apple founder who has been instrumental in picking every Apple CEO. Woolard is chairman of the board of the chemical company E. I. du Pont de Nemours.

Rescue Plan? Anderson said that there were no plans to put Apple up for sale. But *Macworld* has learned that at least one major computer manufacturer is considering a contingency plan to partner with one or more other companies to purchase a majority of Apple's stock. They would then fire the current board of directors, which has been criticized as being out of touch and lacking experience in the personal computer business, and hire a new board and CEO.

Under this scenario, the Mac OS group would probably become an independent subsidiary on the model of Apple's Claris subsidiary. Apple would focus on delivering a strong Mac OS and stop trying to limit the efforts of Mac OS licensees to innovate and expand the market. Apple's computer business would be secondary, competing on an equal footing with other Mac makers.

By having an experienced PC executive at the helm, Apple Computer, in this scenario, would be more competitive in its product offerings and more responsive to market and customer demands. And even if Apple failed as a hardware company, the Mac OS would continue, supported by licensing fees from a broad set of Macintosh manufacturers who would capture Apple's existing customers and possibly expand into new markets.

Sales Changes Amelio's resignation came at a time when Apple seemed poised for major changes in its business. In addition to a possible truce with Mac OS licensees and this summer's final shipment of the Mac OS for the Common Hardware Reference Platform, industry sources say that Apple will soon begin selling systems directly in areas where it previously relied on resellers.

For example, Education Access, once Apple's largest reseller of Macs to schools, switched to selling Power Computing and IBM computers after learning that Apple intended to offer systems to schools directly. m

New! DiskExpress Pro now accelerated for Power Mac and much more!

DOUBLE YOUR DISK SPEED!

Alsoft DiskExpress Pro

PRO PRO

*Without optimization, your disk performance slows to a crawl. Basic optimization may restore some of your disk's original performance. Only **DiskExpress Pro** can double your disk speed by providing faster access to the files you actually use!*

	DiskExpress Pro 3.0	Norton Speed Disk 3.2
Makes your Mac faster than new by monitoring actual file usage?	YES	NO
Groups frequently used files together for optimum speed?	YES	NO
Allows you to schedule or immediately perform a complete optimization of all disks without having to restart your Mac?	YES	NO
Verifies accuracy of read and write activity to ensure data safety during optimization?	YES	NO
Optimizes the busiest of AppleShare™ and File Share™ servers without interrupting productivity or taking the server off-line?	YES	NO

Twelfth Anniversary

Sales.Info@AlsoftInc.com ALSOFT 800-ALSOFT1

Circle 140 on reader service card

5 burning reasons to own

NEW

Fractal Design

Painter 5

Previous Awards from Painter 4

© Copyright 1997 Fractal Design Corporation. All rights reserved. Fractal Design Painter and Natural-Media are registered trademarks of Fractal Design Corporation. All other trademarks are the property of their respective holders.

New Fractal Design Painter® 5 is the ultimate way to create sizzling original artwork–combining comprehensive image-editing features with Fractal Design's patented Natural-Media® technologies.

1 **Expandable plug-in brushes** let you paint with fire and neon, retouch in a snap, and transform images into hand-rendered paintings you can scale, twist, skew, and mirror—the possibilities are endless. And an extensible architecture means that as more brushes become available, you can add them to your existing software.

2 **Dynamic plug-in floaters** perform special effects like burning and tearing edges, Liquid Metal, Glass Distortion, Bevel World, Impasto and more—all available only in Painter. You get the flexibility of a Photoshop-style Adjustment Layer, with virtually unbounded imaging functions.

3 **Powerful Internet publishing tools** help you create red-hot Web sites using seamless background patterns, instant 3-D buttons, and multi-frame GIF animation.

4 **Industry-standard masking** means you don't have to burn up time learning how to do it. And Painter 5 reads and writes files in Photoshop's native format, so moving between programs is easy.

5 **Terrific tear-off tools.** Spark your creativity by working the way you want to—just tear off brushes, art materials, and menu items and place them on custom palettes that fit your needs precisely.

With scorching features like these, why waste another minute. Get the world's most creative design tool now. **Painter 5. It's hot. It's cool.**

For sales and product information, call

888-871-7387

Visit our Web Site at **http://www.fractal.com**

MacWAREHOUSE 1.800.255.6227 · The Mac Zone · MacMall

See Us At The Macworld Expo Booth# 5403 WTC

FRACTAL DESIGN CORPORATION

Circle 5 on reader service card

Model	G773	P775
CRT Screen Size	17" (16.0" viewable)	17" (16.0" viewable)
Dot Pitch	0.26mm	0.25mm
Maximum Resolution	1,280 x 1,024	1,600 x 1,280
Recommended Resolution	1,024 x 768 @ 87Hz	1,280 x 1,024 @ 88Hz

Introducing SuperClear.™ A monitor with an image so clear we had to trademark it.

SuperClear. It's the latest advancement in screen performance and, not surprisingly, it comes from ViewSonic®, the biggest company in display technology and the leader in the 17" (various viewable) market.

The focus is on clarity.

The .26mm dot pitch G773 17" (16.0" viewable) monitor sets new standards for image clarity. The reason is our SuperClear screen—ViewSonic's latest engineering breakthrough that combines the exceptional focus found in high contrast conventional CRTs with the bright, vivid colors associated with aperture grille CRT monitors. The result: Absolutely the clearest, brightest images and most vivid colors available on a 17" (various viewable) monitor. At any price. Period.

More specs, more selections, more solutions.

The G773, with 1,024 x 768 resolution at 87Hz, is perfect for general business, home and the internet. If your work requires even higher resolutions, we're also introducing the P775 17" (16.0" viewable) monitor for CAD/CAM, document imaging and prepress applications. This new monitor offers an eye-popping 1,280 x 1,024 resolution at an amazing 88Hz refresh rate.

Keeping an eye on the environment.

And, in keeping with ViewSonic's commitment to environmental concerns, both the G773 and P775 meet strict TCO '95 standards which reduce heat emissions, lower power consumption and mandate the use of recyclable parts. Compliance to TCO certification ensures that our monitors are environmentally and ecologically friendly.

To fully appreciate the clear advantages of the G773 and P775 though, you really need to see them in person.

For the dealer nearest you, call ViewSonic at (800) 888-8583 ask for agent 5867, or visit our website at: www.viewsonic.com

ViewSonic

See the Difference!

(909) 869 7976 Fax. (909) 869 7958 • Internet www.viewsonic.com
Specifications subject to change without notice • Copyright © 1997 ViewSonic Corporation, all rights reserved.
Corporate names and trademarks stated herein are the property of their respective companies.

Circle 59 on reader service card

HOW WOULD YOU LIKE

P L A I N O R F U

Software Included FREE with APS M•POWER Systems

$1000 Value!

- Claris Works
- Claris Home Page
- Nisus Writer 4.1
- DiskFit Direct
- Web Arranger 30-day trial
- AOL Software
- Claris Organizer
- Macintosh System 7.6 or later
- PowerMerge LE
- QuickMail Express
- QuickKeys 30-day trial
- Bare Bones Software Goodies

www.apstech.c

YOUR M•POWER?

L Y L O A D E D ?

M•POWER STARTING AT $699

Plain *Base Systems*

M•POWER 603e200

Includes:
- Floppy Drive
- Bundled Software ($1,000 Value)
- 2-Year Limited Warranty

AS LOW AS $699

Desktop Case
- Two 5.25" Internal Bays
- Two 3.5" One-inch High Internal Bays
- Three PCI Expansion Slots
- 145 Watt Power Supply

MacUser LABS 282

603e200

M•POWER 604e200

Includes:
- Floppy Drive
- Bundled Software ($1,000 Value)
- 2-Year Limited Warranty

AS LOW AS $1149

Mini-Tower Case
- Three 5.25" Internal Bays
- Four 3.5" One-inch High Internal Bays
- Five PCI Expansion Slots
- 300 Watt Power Supply

MacUser LABS 365

604e200

♦♦♦♦MacWEEK 604e200

Fully Loaded *Customization Options*

DRIVE OPTIONS

Removable Drives*
- 16X CD-ROM ATAPI
- 16X CD-ROM SCSI
- CD-R 2X6 SCSI
- Zip SCSI
- 230MB MO
- Jaz SCSI w/one cart
- HyperDAT
- HyperDAT Pro

Hard Drives*
- 2GB SCSI Quantum
- 2.5GB IDE Quantum
- 3GB IDE Quantum
- 3GB SCSI Quantum
- 4GB SCSI WD
- 4GB SCSI Quantum
- 6GB SCSI Quantum
- 9GB SCSI Quantum
- 9GB Wide Quantum

RAID*
- 6GB/12GB 5400rpm
- 4GB/8GB 7200rpm
- 9GB/18GB 7200rpm

MEMORY OPTIONS

RAM
- 16MB DRAM
- 32MB DRAM
- 64MB DRAM
- 1MB VRAM (EDO)
- 2MB VRAM (EDO)
- 4MB VRAM(SGRAM)

CACHE
- 256K L2
- 512K L2

ACCESSORIES
- Keyboard/Mouse

PCI CARDS*
- 4MB IMS TwinTurbo Card
- 8MB IMS TwinTurbo Card
- 8MB MGA Millennium
- Xclaim VR 3D Card
- miroMOTION DC20 Card

MONITORS*
- Philips/Magnavox 15"
- Philips/Magnavox 17"
- Philips/Magnavox 20"
- Sony 100SX 15"
- Sony 200SX 17"
- Sony 200SF 17"
- Sony 300SF 20"

*Partial listing

Point your browser to

http://www.apstech.com/aps-byob.html

for a complete listing of configuration options with APS' Online BYOB Configurator

APS has the most internal drive options

System*	Hard Drive Options	RAID Options	CD-ROM Options	CD-R Options	Tape Backup Options	Removable Media Options
APS M•Power 604e200	**24**	**3**	**3**	**2**	**3**	**3**
PowerTower Pro 200	4	2	1	0	0	2
PowerMac 8600/200	1	0	1	0	0	1
SuperMac S900/200	1	0	1	0	0	0

*Comparison data for the 604e, 200MHz systems listed above taken from the manufacturer's Web sites on 6/23/97.

APS Technologies

PowerPC is a trademark of International Business Machines Corp. and is used by Motorola, Inc. under license from International Business Machines Corp. Microsoft is a trademark of Microsoft Corporation. Mac OS is a registered trademark of Apple Computer, Inc. M•POWER, APS and APS Technologies are registered trademarks of Alliance Peripheral Systems, Inc. Other brand or product names are registered trademarks or trademarks of their respective holders. Prices and specifications are subject to change without notice. The APS M•POWER systems are not covered by a 30 day money-back guarantee.

GREAT PRICES, PRICELESS SUPPORT!

Call this special number 800-926-0693

See pages 186-187 in this issue for more information about M•POWER Systems and APS peripherals.

APS Technologies • 6131 Deramus • Kansas City, MO 64120-0087

Circle 61 on reader service card

News

systems

Inside the Next-Generation Macs

PREVIEW OF CHRP MOTHERBOARDS SHOWS KEY ADVANTAGES

by Galen Gruman

RICHARD TUSCHMAN

Promised for nearly three years, the Common Hardware Reference Platform (CHRP) is now close to reality, with systems poised for release over the next few months—perhaps as early as September—from Motorola Computer Group (800/759-1107, *www.mot.com/starmax/*), Power Computing (512/388-6868, *www.powercc.com*), Tatung RISC Systems International (*www.tatung.com.tw*), Umax Computer (510/226-6886, *www.supermac.com*), and others. Tatung plans to ship systems only in the Far East, Germany, and perhaps other northern European countries; the other companies will ship their systems in the United States, Canada, and perhaps other countries.

CHRP will allow faster system-bus speeds, which will boost system performance. But CHRP is about more than just speed. It's about less-expensive, more-capable Macs. It achieves this through an architecture that takes the approach of a PC—common, inexpensive parts available from multiple suppliers using a standard basic design that everyone knows—and adds to it the Mac-specific technologies that Mac owners expect and exploit in their current systems. CHRP enables the first truly open Macs.

As Cheap as PCs With the use of standard components and designs, Tatung officials say they can create and sell Macs at the same prices as PCs—a first. Other Mac makers expect similarly dramatic savings. For example, CHRP motherboards fit into a standard case size called ATX, and thus in standard PC cases.

Although the Mac OS license is much more expensive than Microsoft's Windows 95 license (two to four

times as much, according to sources), IBM Microelectronics and Motorola Semiconductor have kept the prices of PowerPC CPUs significantly below those of Pentiums. According to several Mac makers, this means the overall cost is roughly a wash, even when you factor in the extra circuitry required on Macs for SCSI (an option on most PCs) and ADB.

Adding PC Technologies Motorola Computer Group and Umax Computer provided *Macworld* with two prototype CHRP motherboards that show the technologies in place—and the flexibility offered by an open architecture. Both companies' prototypes have extended traditional Mac features with PC capabilities, as seen in the sidebar "Up Close: What Two Open Mac Designs Offer."

For example, the Motorola system includes a parallel port that accommodates standard PC printers, while the Umax system has an ISA slot that lets you use a standard internal PC modem rather than a box hanging off the back of your Macintosh. Note that these are prototype systems, and what the companies actually ship to customers may differ.

continues on page 46

EXPO ALERT!

MACWORLD EXPO COMES TO BOSTON AUGUST 5 THROUGH 8, AND *MACWORLD* WILL BE THERE TO COVER THE HOTTEST NEW HARDWARE AND SOFTWARE FOR THE MACINTOSH. GET THE LATEST NEWS—AND OUR BEST OF SHOW PRODUCT PICKS—FROM MACWORLD DAILY AT *WWW.MACWORLD.COM/DAILY/*.

ROBERT PERRY

Sharp's VE-LC1 digital camera features a rotating lens and 2.5-inch LCD.

graphics

New Digital Cameras Join the Crowd

TOSHIBA AND SHARP AMONG ENTRANTS

by Andrea Dudrow

Digital cameras are appearing faster than baby rabbits. Toshiba (714/583-3000, *www.toshiba.com*), Panasonic (201/348-7000, *www.panasonic.com*), Yashica (908/560-0060, *www.contaxcameras.com*), Sharp (201/529-8200, *www.sharp-usa.com*), and Sony (201/930-1000, *www.sony.com*) are the latest vendors to offer entries in this increasingly crowded market.

New from Toshiba Toshiba's $499 PDR-2 offers 640-by-480-pixel resolution and is one of the first digital cameras to use CMOS (complementary metal-oxide semiconductor) image sensors, a less costly alternative to CCDs.

It stores images on matchbook-size Solid State Floppy Disk Cards (SSFDCs); a 2MB SSFDC included in the package can hold up to 24 high-quality or 48 standard-quality images. You can transfer images to your Mac if you own a PC Card reader. For users without PC Card readers, Toshiba plans to offer an adapter that allows use of SSFDC media in a standard floppy drive. The PDR-2 ships with Sierra Imaging's ImageExpert and Live Picture's LivePix, but unlike many cameras does not include an LCD preview.

Yashica's KC 600 Yashica has announced the $599 KC 600, which includes an LCD preview and 2MB CompactFlash PC Card. You can store 8 high-quality or 21 normal-quality images at 640-by-480-pixel resolution, or 80 economy-mode images at 320-by-240-pixel resolution. A burst mode lets you take 4 pictures in 1 second. The camera transfers images to the Mac via a serial connection or PC Card slot and includes a cable that lets you view your images on a TV. The KC 600 ships with MGI PhotoSuite SE software.

Two from Panasonic Panasonic's entries are the KXL-600A and the LCD-equipped KXL-601A. The cameras ship with a 2MB CompactFlash storage card, which holds 24 high-quality images at 640-by-480-pixel resolution or 96 standard-quality images at 320 by 240 pixels. The $458 KXL-600A and $658 KXL-601A both include a Mac interface kit with a serial cable. To save battery power, the cameras go into sleep mode after 30 seconds of nonuse and power down after a minute. They ship with Panasonic's own image-editing software.

Sharp's Rotating Lens Sharp's $750 VE-LC1 features 640-by-480-pixel resolution, a relatively large 2.5-inch LCD panel, and a rotating lens that lets you take pictures of yourself. An IrDA port permits wireless image transfer to IrDA-equipped Macs, such as the PowerBook 3400. Otherwise you can use an included serial cable. The package also includes a 4MB CompactFlash PC Card that stores 60 normal-mode or 120 economy-mode images. The 7.4-ounce camera ships with EasyPhoto image-transfer software.

Back to the Floppy Sony's new $599 MVD-FD5 and $799 MVD-FD7 store up to

continues

Macworld Takes Top Award for Copland Coverage

Macworld magazine has received the Computer Press Award for best individual news story or series, for our print and online coverage of Apple's decision last summer to cancel development of the Copland operating system. The awards, presented June 17 in New York, are sponsored by the Computer Press Association, a national organization of journalists. The awards represent the highest honors in computer publishing.

It's just the latest in a series of recent awards for *Macworld*'s editorial coverage. Earlier this year, Macworld Online received the prestigious Jesse H. Neal Editorial Achievement Award from the American Society of Business Press Editors (ASBPE) for best use of new media. The Western Publications Association honored the September 1996 *Macworld* with a Maggie Award for best magazine in the computers and telecommunications/consumer category. And *Macworld*'s July 1996 issue took third place for best news section, over 100,000 circulation, in the national American Society of Business Press Awards sponsored by the ASBPE West and Midwest chapters. The same issue won first place for best news section in regional ASBPE awards sponsored by the group's West and Midwest chapters.

40 images at 640-by-480-pixel resolution on a standard 3.5-inch floppy disk. Powered by a rechargeable lithium ion battery, both can capture up to 500 images between charges. They also include a 2.5-inch LCD and ship with ArcSoft PhotoStudio. The MVD-FD7 features a 10× zoom lens.

multimedia

QTVR Gets Ready for Prime Time

NEW AUTHORING TOOLS INTRODUCED

by Stephen Beale

Apple's (408/996-1010, *www.apple.com*) QuickTime VR (QTVR) technology, until recently the province of a few pioneering multimedia developers, is stepping into the limelight. PictureWorks (510/855-2001, *www.pictureworks.com*), Live Picture (408/438-9610, *www.livepicture.com*), and Panimation (407/599-9697, *www.panimation.com*) have introduced inexpensive software packages that make it easier to create QTVR panoramas. Be Here (408/399-1905, *www.behere.com*) has reduced the original asking price of its Portal S1 panoramic camera, albeit to a still-costly $9995. And thanks to a new application programming interface (API) in QTVR 2.0, developers of graphics software can add QTVR authoring capabilities with minimal hassle. Still, Apple can't rest on its QTVR laurels because several competing technologies have emerged.

A QTVR panorama gives you the illusion of being in the center of a virtual environment; scrolling with the mouse or cursor keys offers a 360-degree view of the scene. To create the panoramas, you shoot a series of photographs from the center of the environment you want to replicate; you can also create panoramas consisting entirely of computer-generated images. Either way, you need a QTVR authoring tool to stitch the individual images into the full panorama and save it in QTVR format. Panoramas can also include object movies that let you view objects from different sides.

KEVIN CANDLAND

Be Here's Portal S1 can capture a complete QTVR panorama in one shot.

New Software Apple offers free software that converts panoramic PICT images created in other programs into QTVR movies. However, creating the panoramas themselves is a time-consuming task. The new authoring programs—PictureWorks' $100 Spin Panorama, Live Picture's $100 PhotoVista, and Panimation's $169 Nodester—make it much easier to stitch the images into QTVR movies or panoramic stills saved in PICT or JPEG formats. With their simple interfaces and low price tags, they promise to bring QTVR authoring capabilities to a much broader market. They are especially useful in conjunction with digital cameras.

With each product, you begin by taking a series of photographs, rotating the camera clockwise so that each shot slightly overlaps the previous one. You then import these images in sequence to create the panorama. Spin provides tools that simplify the stitching process: after you identify common reference points in adjacent images, the program causes these points to overlap, binding the right side of one image to the left side of the next. PhotoVista and Nodester automate this process, aligning and stitching the images with a single command. You also have the option of manually fine-tuning the stitch. All three programs include blending functions that minimize lighting differences between adjacent photos. However, none can produce an object movie.

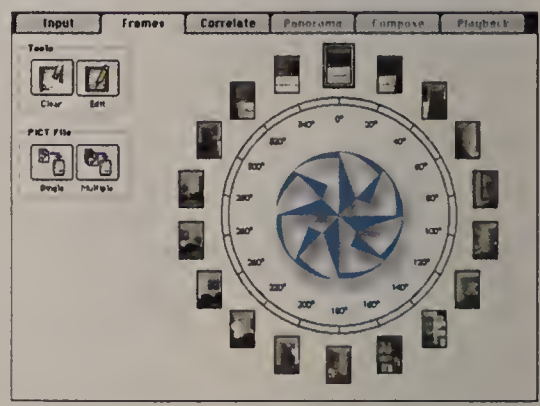
Nodester includes a simple built-in image editor, allowing you to perform basic image enhancements without using a separate program. A rapid-fire mode lets you capture a series of images using a digital camera tethered to the computer; the software then automatically composes the images into a complete panorama.

Spin and Nodester support QTVR only. PhotoVista supports QTVR plus Live Picture's own RealVR format, which was developed by Eric Chen, a member of the original QTVR programming team. Live Picture is currently working on an enhanced version of PhotoVista, to be introduced later this year, that will allow designers to add a variety of media elements to the panoramas, including FlashPix images.

Competing Formats RealVR is one of several technologies that have emerged to compete with QTVR. Its major advantage is file size: a RealVR panorama generally consumes much less data than the equivalent QTVR movie. The format consists of a JPEG image packaged within a VRML file; to view the panoramas you need to download a VRML extension from the Live Picture Web site.

Other QTVR competitors include SurroundVideo from Black Diamond (603/430-7777, *www.bdiamond.com*), SmoothMove from Infinite Pictures (503/221-2449, *www.smoothmove.com*), Ipix from Interactive Pictures (423/690-5600, *www.ipix.com*), and Tornado from NetVR (206/702-9525, *www.netvr.com*). SmoothMove is PC-only technology. SurroundVideo is PC-only on

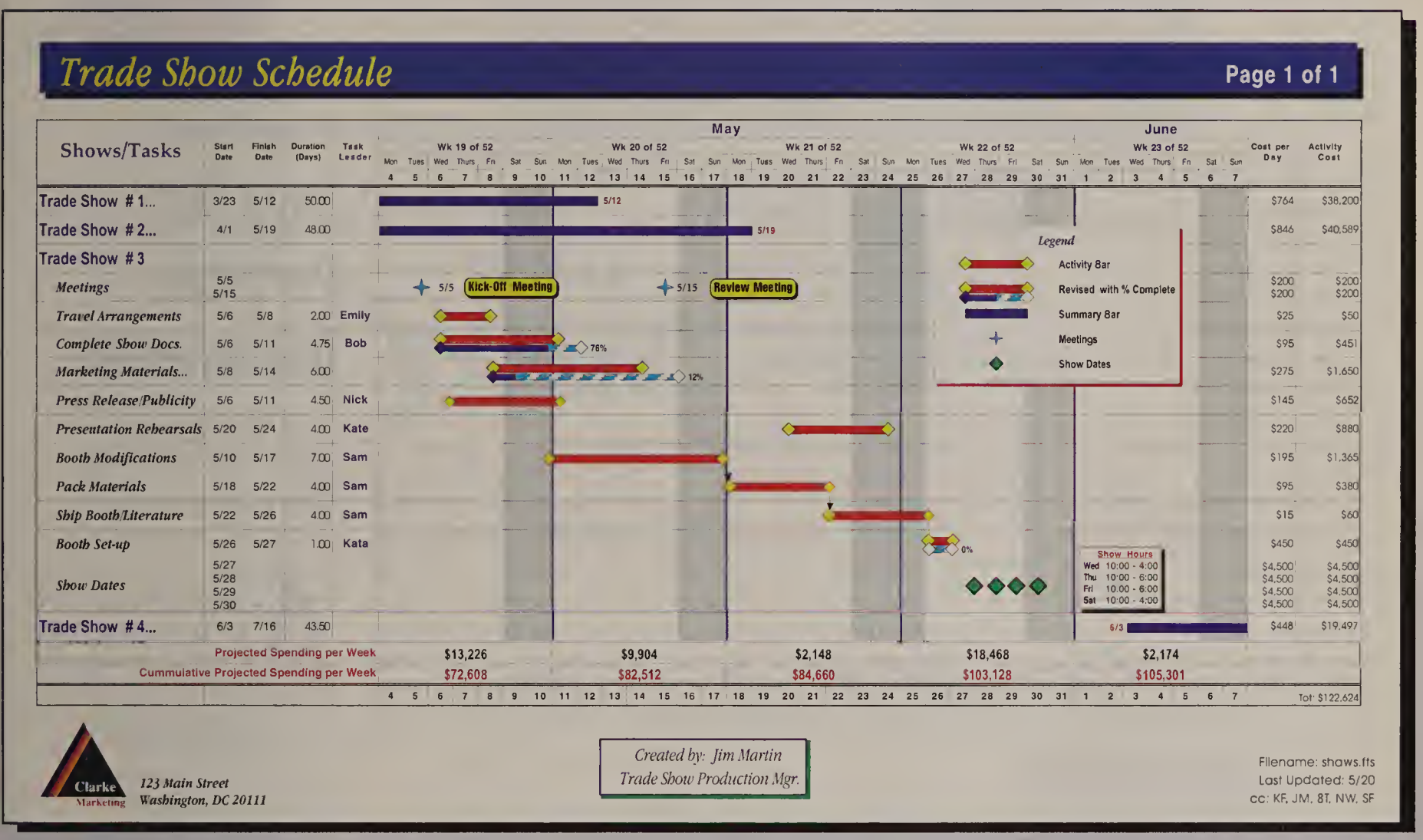
continues



Panimation's Nodester (top) and Live Picture's PhotoVista (bottom) make it easier to create QuickTime VR panoramas.

Project Scheduling Made Easy.

New Version 5.0



It's easy to use. FastTrack Schedule is intuitive and flexible, meeting all your project scheduling needs. It works how you do, letting you schedule projects quickly, easily, but with the control your projects require. You don't have to be an expert in project management to keep your projects organized; you just need the right tool to get it done. It's that simple.

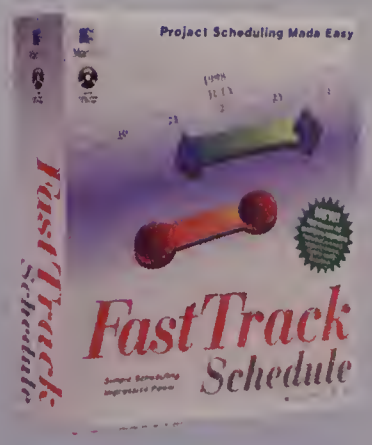
FastTrack Schedule™

It's easy to learn. Can you afford to waste time learning software over and over again? Now you don't have to. With online help systems, tool tips, and bubble help, you'll have quick solutions at your fingertips. And with FREE and UNLIMITED technical support, you'll always stay on track.

MONEY BACK GUARANTEE 30 DAY

It's easy to buy. We give you a free demo to try the software. If you like it, call us and we'll activate your demo on the fly. Plus FastTrack Schedule is 1/3 of the cost of most project management software, so it will fit your budget as well. Call today for a free demo or download it from our web site!

Simple Scheduling. Impressive Power.



Get on track!

Call to order, for more information or download a FREE DEMO today!

(800) 450-1982

http://www.aecsoft.com

Here are just some of the new features you'll find in Version 5.0:

- Calculation Fields
- Time Period Summaries
- Choice Lists
- Legend Builder
- Column Summaries
- Export directly to HTML, GIF, JPEG
- Copy Page vs. Copy Schedule
- Context Sensitive Mouse Clicking
- Finish-to-Finish Linking

plus many more...

Upgrade to Version 5.0 Today!

Mac OS

Accelerated for Power Macintosh

AEC Software, Inc., 22611-113 Markey Ct., Sterling, VA 20166, USA • Phone (703) 450-1980 • FAX (703) 450-9786 • http://www.aecsoft.com

©1997 AEC Software, Inc. All rights reserved. Windows, Windows 95 and Windows NT are registered trademarks or trademarks of Microsoft Corporation. Macintosh is a registered trademark, and Power Macintosh is a trademark of Apple Computer, Inc

Circle 203 on reader service card

the authoring side, but you can view the panoramas using a Mac-based ActiveX control for Microsoft Internet Explorer or Netscape Navigator.

Interactive Pictures (formerly OmniView) offers Mac-based authoring and viewing software, including a Macromedia Director Xtra, but instead of paying for a standard software license, you pay $25 to $100 for each completed movie, depending on the quantity you produce. You can capture a complete panorama with two shots from a camera equipped with a fish-eye lens. In addition, images are mapped to the inside of a virtual sphere—rather than QTVR's virtual cylinder—meaning that you can look all the way up and down in addition to left and right.

NetVR's Tornado is based on Java, so you don't need special plug-ins to view the content. Currently, Tornado generates in-line 3-D objects—equivalent to QTVR's object movies—but the company is also developing a panoramic movie component. The pricing is similar to Interactive Pictures'—you pay a sliding fee for each object you create.

Panoramic Camera Be Here, which introduced its Portal S1 Panoramic Capture System at the 1997 Macworld Expo in San Francisco, has reduced its original $15,000 asking price to $9995. However, it's another metered system: the base price buys you the right to make 100 images; after that, you pay $4 to $5 per saved image depending on volume. The advantage of the Portal S1 is that it can capture an entire 360-degree panorama in a single shot. This lets you create scenes with people and other moving elements that would be impossible to produce with other cameras.

systems

Some Day My Mac Will Come

MAC SYSTEM VENDORS DELIVER FASTER IN 1997

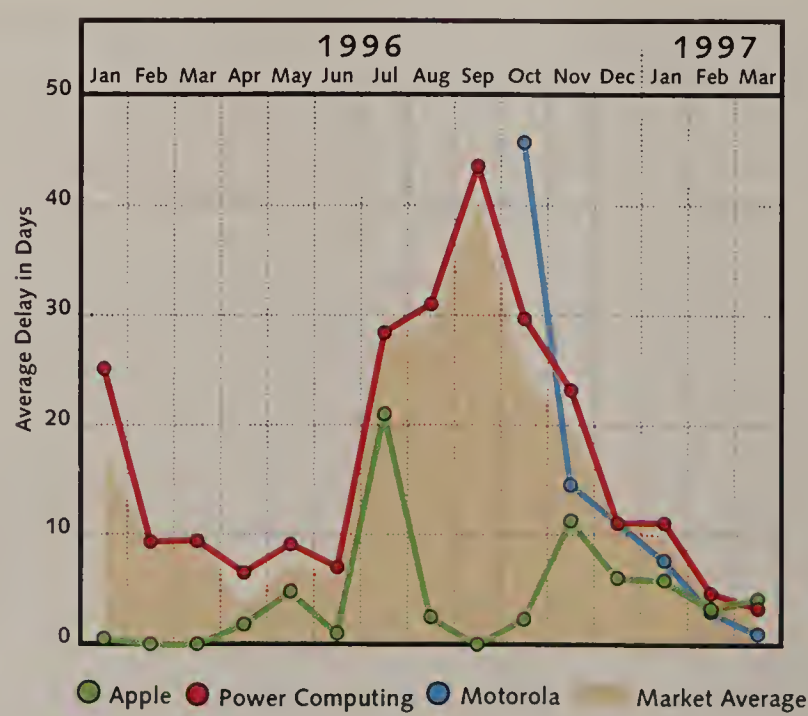
by Cameron Crotty

Back in the Great Mac Drought of 1996, buying a Macintosh was difficult, and certain high-end models couldn't be had for love or money. But according to an online survey conducted by *Macworld*, users are seeing improved system availability and dramatic reductions in delivery delays.

We asked visitors to Macworld Online's Web site how long it took them to receive their systems after placing the order. Respondents overwhelmingly verified the anecdotal reports of Mac shortages in fall 1996. The worst month, September, required patience of biblical proportions, as customers waited an average of 40 days and 40 nights for their systems to be delivered. But later that year, new systems vendors joined the market and existing vendors ramped up production. By December, in the midst of the busy holiday season, the average wait was down to 11 days. By March 1997, consumers were waiting an average of only three days for a new system.

Readers should note that results in surveys like these tend to be negatively skewed, as individuals with complaints are more likely to respond than are satisfied users. Nevertheless, generally it's easier than ever to buy a Mac OS system.

Still, not all is rosy. Apple's latest high-end Macs are still very hard to find, with the Power Mac 8600/200 and 9600/233, announced in February, just becoming available in volume as this was written. Also, systems based on the 250MHz PowerPC 604e chip remain extremely scarce.



This graph shows the average time (in days) elapsed between ordering and receiving a Mac OS system, as reported by our online survey. Only Apple, Motorola, and Power Computing generated enough responses to be broken out individually.

publishing

Java for Portable Documents

JSTREAM OFFERS AN ALTERNATIVE TO PDF

by Cameron Crotty

Adobe's Portable Document Format (PDF) is great for high-quality, precisely formatted documents. But PDF's huge file sizes can be a high price to pay, especially when sending the files over the Internet.

JStream (360/891-0649, *www.jstream.com*) believes it has the answer in its JPress Document Format (JPD), a proprietary compression technology based on the company's text-handling libraries, which are written in Java.

Built-in Viewer JStream's WiredWrite publishing application, scheduled to ship this fall, translates documents into the JPD format—which compresses them significantly—and attaches a small (70K), Java-based viewer. The resulting files retain all formatting, are rapidly searchable, and can be read on any computer running a Java virtual machine. Also, you can reformat text as you read it;

continues

TIMOTHY COOK

These machines keep up with your creativity.

S900DP/250 SPECIFICATIONS:

MODEL NAME	S900DP/250
Processor Type	604e/250MHz
RAM	64MB up to 1GB
Interleaved Memory	Yes
Access Memory	128-bit
Level-2 Cache	512K
CD-ROM Speed	12X SCSI
Hard Drive	4GB Ultra SCSI RAID
Drive Bays	7 open/2 open
Total PCI Slots	6
Video Memory	8MB
ADB Ports	2
Ethernet	Yes
10Base-T & 100Base-T	Yes
Ultra-Wide SCSI Card	Yes
Serial Ports	2
Zip Drive	Yes

Monitor not included. Features subject to change without notice.

The SuperMac S900 line provides reliable and expandable architecture, so you always have the best creative tools at hand.

You've got great ideas, and you deserve a machine to match. The SuperMac S900 family offers a range of models that combine superior engineering and performance with convenient upgradeability— all for a very competitive price. Plus the S900 architecture makes it easy to upgrade to a dual processor. So there's no need to worry about your machine becoming obsolete. All this from UMAX, a company dedicated to the Mac OS system and rated #1 in both service and purchase satisfaction in a June 1997 *Macworld* poll. The SuperMac S900 from UMAX. Finally, there's a machine that can meet your creative demands.

* CacheDoubler
Faster data speeds.
Better performance.
No software required
Exclusively from UMAX

High-Upgradeability

POWER

Mac OS

PowerPC

The SuperMac S900 line has received numerous awards, including:

MacUser

MacWeek

MW Editors' Choice

For more information on where to purchase the S900,
call **1-888-625-UMAX** or visit us at **http://www.supermac.com**

UMAX®
Computer Corporation

© 1997 All rights reserved. SuperMac is a registered trademark licensed to UMAX Computer Corporation. CacheDoubler is a trademark of UMAX Computer Corporation. Mac and the MacOS logo are trademarks of Apple Computer, Inc. used under license. PowerPC and the PowerPC logo are registered trademarks of International Business Machines Corporation.
* CacheDoubler upgrade will work on all existing S900 machines, available in Fall '97.

Circle 99 on reader service card

Internet WATCH

BY CAMERON CROTTY

Buddying Up on the Net

Until recently, real-time Internet communications meant logging on to the chat channels, or setting up a voice connection with one of several telephony products. But now, America Online (703/448-8700, *www.aol.com*) and Excite (415/568-6000, *www.excite.com*) have announced products that alert you when colleagues access the Internet, and then provide a vehicle for exchanging text messages with them.

To use America Online's Instant Messenger or Excite's PAL, you must download client software and register with the AOL or Excite server. The client software informs the server that you are online and lets you exchange messages.

Currently, the software is freely accessible from the Excite and AOL Web sites. Excite's PAL is completed, while AOL's was still in beta testing at press time. AOL expects to have the final version available this fall.

High-Style E-Mail

Text-based e-mail is beginning to look paltry when stacked up against brightly colored Web pages with dancing graphics. But sending multimedia messages is still a nightmare of enclosures, coding, and uncertainty about whether the recipient has the required viewer applications.

Novita Communications (408/745-5990, *www.novitacom.com*) dodges this problem with NovitaMail, a new HTML-based e-mail client that lets you build formatted messages combining text with graphics, animations, and even embedded Java applets. NovitaMail then packages, compresses, and mails the message along with an extractor written in Java; since the message is in HTML, any Web browser can read it. A public beta program for the Mac version is set to begin by the time you read this; the product should ship this fall for $39.

Industrial-Strength Web Design

Handcrafting a Web site page by page in an HTML editor might work for a small site, but not for a large corporate site with lots of pages and constantly changing data.

Pictorius (902/492-2880, *www.pictorius.com*) is offering an alternative in the form of Pictorius Inet Developer. Based on the company's Prograph object-oriented development environment, the software lets you develop and store content in a database, from which you generate HTML pages on the fly. You can easily edit and rearrange content without the drudgery of rebuilding pages by hand. Inet Developer should be available by the time you read this. For $1495 you get the site and page editor, the application server, the integrated development environment, and a Web server.

if you resize the window, a JPD document reflows to reflect the change.

Java Limitations JStream has far to go before JPD will be widely accepted, largely because Java's printing and typography features are embryonic at best. Also, while many current applications can directly output PDF files, users must filter documents through WiredWrite to produce JPD files. And PDF, given its roots in PostScript and growing acceptance in the print world, will likely be the electronic document format of choice for high-quality output. But JPD may offer a viable alternative when PDF is too much and HTML is not enough.

systems

No More Free Tech Support

APPLE ADOPTS 90-DAY PHONE SUPPORT POLICY; AFTER THAT, YOU PAY

by Cameron Crotty

Free tech support, long a standard in the Macintosh market, is becoming the exception rather than the rule. Apple recently announced that it will no longer provide lifetime toll-free tech support for its Macintosh systems. Some Mac makers are sticking to their free support policies, but others, such as Apple, are finding that the cost is too much to bear.

If you bought your Mac between April 1, 1993, and April 1, 1996, Apple will continue to provide free tech support. But if you purchased a Mac after April 1, 1996, you get only 90 days free. After that, hand-holding over the

telephone will cost you a minimum of $69.95. That's the annual cost of a Level I Apple Support Line contract, which covers ten service incidents per year. If you have more incidents, you'll have to pay for another contract, which covers you for another year or ten incidents, whichever comes first.

Feeling the Pinch In today's PC market, few vendors offer unlimited free telephone support. Even a large company like Apple feels the pinch when support representatives must process 20,000 calls per day. In addition to salary and equipment costs, each support rep must be extensively trained.

"Free telephone tech support forever is a nice thought, but it's not sustainable," says Pete Gladstein, senior director of Apple Assist for the Americas.

Nevertheless, Mac vendors tend to have more liberal support policies than their PC counterparts. Power Computing and Umax Computer, for example, both provide unlimited toll-free tech support. Umax believes it's an important way to create a positive image in customers' minds.

"If customers feel that they've been treated well [during a support call], maybe they'll pick up another Umax product," says Jim O'Rourke, director of quality and services at Umax.

But even Umax is feeling the pressure, given Apple's recent flurry of system software upgrades. O'Rourke says that Umax strongly encour-

continues

TIMOTHY COOK

The Scanner Choice of Imaging Professionals.

PC MAGAZINE EDITORS' CHOICE™
March 4, 1997
Microtek ScanMaker III

"As for image quality, our jury panel judged the ScanMaker III's images best in show among the 17 scanners we reviewed." —*PC Magazine*, March 4, 1997

"The ScanMaker III is the best I've seen. It gets the sharpest scans, and the dynamic range and capabilities are incredible. The descreen filter is absolutely phenomenal — I wouldn't know what to do without it!" —Jon Lucenius, Rupple Productions Inc., Baltimore, MD

"My Microtek ScanMaker III pays for itself everytime I use it."
—C. David Piña, designer
of main titles for the *Academy Awards*,® *Tony Awards*,® *Grammy Awards*,® and *Emmy Awards*® telecasts

"The image quality is awesome! It's even better than the drum scans I was paying for every week. I especially enjoy being able to capture images at the full 36-bit range without any mapping down."
—Warren Patterson, photographer
Warren Patterson Photography & Imaging, Wellesly, MA

Those who have come to expect excellence in desktop imaging have consistently turned to the world's leading desktop scanner maker. They know what distinguishes Microtek scanners from their competitors — superb image quality, accurate color, speed, and ease of use.

And nowhere are these attributes more exemplified than in Microtek's award-winning, high resolution ScanMaker® III. The ScanMaker III was the first true 36-bit, color flatbed scanner that captured and delivered full 36-bit image data to Adobe Photoshop.

Find out why the ScanMaker III is the choice of discriminating professionals in graphic design, advertising, photography, software and multimedia development and prepress.

For the location of the Microtek reseller nearest you, contact Microtek Sales at 1-800-654-4160. For additional information, point your Web browser to: www.microtekusa.com.

MacUser RATED NOVEMBER 1994

1996 Finalist MVP PC Computing

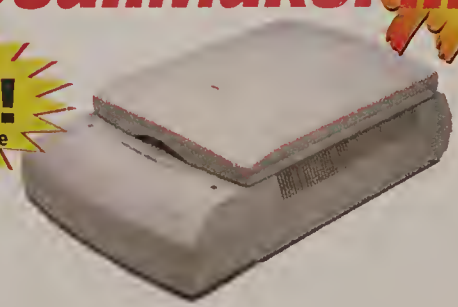
Publish impact AWARDS '94

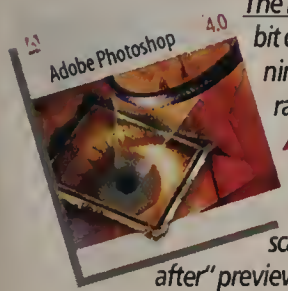
DTP direct EDITOR'S CHOICE

HOT PRODUCT 1994 ELECTRONIC PUBLISHING

MICROTEK ScanMaker III

Only $1,499! Suggested Street Price





The Microtek ScanMaker III features: • ***Free Transparent Media Adapter*** • *True 36-bit output to Adobe Photoshop (in "billions of colors" setting)* • *Incredibly fast single-pass scanning* • *600 X 1200 dpi optical resolution* • *4800 dpi enhanced resolution* • *Up to 3.4 dynamic range highest in its class* • *Up to 68.7 billion colors / 4096 shades of gray* • ***Full-version of Adobe Photoshop 4.0*** • ***Xerox TextBridge Pro*** *OCR software (Macintosh models)* • *Microtek's DCR Color Calibrator with IT-8 targets* • *ScanWizard scanner controller software with full-screen / resizable preview, descreening, high-resolution zoom, batch scanning, sharpen, blur, tint & emboss filters, adjustable & storeable gamma curves, "before & after" preview of each effect and much more!*

MICROTEK
Better Images Through Innovation.

Usage of PC Magazine Editors' Choice logo and quotation is by permission of the publication and in no way constitutes an endorsement of this product. All trademarks or registered trademarks are the property of their respective holders. Price mentioned is United States of America suggested street price. Prices, specifications and software bundles are subject to change without notice. SM3597

Circle 105 on reader service card

ages callers to provide a serial number to get support. "But we don't just turn them off if they don't have one," he says. "We try to help them a little bit." A Power Computing spokesman also hinted that, long-term, the company would work to wean users off toll-free phone support as costs increase.

Going Online Nearly all Mac systems vendors have augmented their support departments with online resources, from FAQs on Web pages to e-mail support. But the Internet is not a magic bullet for tech support. "Online support is not 'throttleable,'" says APS Technologies' president, Paul Mandel. When telephone lines are saturated, a company can "turn on the busy signal" and refuse more incoming calls, but there is no similar mechanism to keep from drowning in e-mail. Some vendors have tried systems that automatically send messages telling you how many queries are queued up ahead of yours, but these have proved to be dismal failures. "People would just send more e-mail, *and* call, *and* send faxes," Mandel says.

With Apple restricting its free telephone tech support, some systems vendors worry that their support burdens will increase. "Customers seek out the guy with the free tech support," often regardless of which vendor the customer purchased the original product from, says APS senior vice president Paul McGraw.

publishing

Workflows in Cyberspace

NEW PRODUCTS BRING YOUR SERVICE BUREAU TO THE DESKTOP

by Stephen Beale

Macintosh users in the publishing business have long awaited the era of virtual manufacturing, a brave new world in which the service bureau and commercial printer become a seamless extension of your desktop. Thanks to a host of recently announced software products and telecommunications services, that promise is closer than ever to reality.

OPENing Move The technology to enable this vision first appeared in the OPEN workflow-management system from Luminous (206/689-6700, *www.luminous.com*), which lets service bureaus create pipelines where incoming jobs are automatically inspected, trapped, imposed, color-separated, and printed with or without the involvement of a prepress operator. OPEN is both a product and a plug-in architecture; any OPEN-compliant prepress application can be added to the automated pipeline.

A companion product, Luminous Virtual Network—formerly Adobe Virtual Network—lets your service bureau accept transmitted print jobs for automated processing through the pipeline. It has two components, a host program run at the service bureau and a client program that can be freely distributed to customers. Luminous offers a free generic version of the client on its Web site, but your service bureau can also generate customized client modules for distribution to customers.

Choose Your Service The customized client makes your service bureau appear as a Chooser-level output device. When you print the job, you fill out an electronic order form with instructions for handling the file. The file is then automatically transmitted to the service bureau.

Luminous recently announced Virtual Network Pro, which lets users at remote sites collectively review and annotate documents. Luminous Virtual Network Pro for ISDN, introduced in June, includes two- and four-channel ISDN boards.

continues

Marathon to Run Mac Race

NEW MOTOROLA LICENSEE TO SHIP RACK-MOUNT SYSTEMS IN JULY

Start-up Mac maker Marathon Computer (615/242-9700, *www.marathoncomputer.com*) is joining the ranks of Motorola sublicensees, which also include PowerTools and APS Technologies.

The Nashville-based Marathon plans to offer rack-mounted Mac OS computers beginning in mid-July. Based on Motorola's Tanzania motherboard, the line will be called the RackMac TZ.

Each model will include SCSI and IDE buses, built-in video, a 200-watt power supply, and three PCI slots, with CPUs ranging from a 180MHz 603e to a 200MHz 604e. A bare-bones model with those components and a 180MHz 603e will go for $1995, while a Web-server model that adds 16MB of RAM, a 256K cache, 2MB of VRAM, a 1.2GB hard drive, a 16× CD-ROM drive, and a mouse will cost $2999. (Three higher-priced Web servers, two with a PowerPC 603e CPU at either 200MHz or 240MHz and one 200MHz 604e, are also available.) Marathon's top-of-the line $3799 system features 32MB of RAM, a 512K cache, 4MB of VRAM, a 2GB hard drive, a 16× CD-ROM drive, a mouse, and either a 240MHz 603e or a 200MHz 604e.

The rack-mounted models are aimed at the server and professional video markets. Marathon vice president Stephen Woolverton says 80 percent of the inquiries the company has fielded about the systems have come from multimedia designers. For the server side, Marathon will offer optional monitoring software for the Web. FailSafe, a $99 software option for the RackMacs, helps prevent server lockups by polling the system for operational failures. After it has detected a certain number of system failures, FailSafe automatically restarts the server for you.—TOVA FLIEGEL

ARNOLD TIOSEJO

Marathon's rack-mounted RackMac TZ is based on Motorola's Tanzania motherboard.

When you have a need...

Formula One Superstar and
Computer Aficionado Jacques Villeneuve

For speed.

For better browsing, easier e-mail and faster faxing, nothing adds speed, power and performance to your Mac better than a Viking 56K PC Card modem. Popular Rockwell 56Kflex technology. 100% tested. Guaranteed compatible.

Five year warranty. Free 24-hour, 7-day toll-free tech support.

For more info or the dealer nearest you, call 1.888.4.VIKING. Or visit us at Macworld Expo, Booth 1424.

Macworld EXPO Booth 1424

VIKING COMPONENTS

30200 Avenida de las Banderas, Rancho Santa Margarita, CA 92688 • 1.888.4.VIKING • www.vikingcomponents.com

Circle 233 on reader service card

Group Logic (703/528-1555, *www.grouplogic.com*), which developed the core technology in Luminous Virtual Network, has released its own version, called Mass Transit. The company also offers a remote document-viewing and annotation program called Imagexpo 2.0.

Tempus in a Teapot DK&A (619/488-8118, *www.dka.com*) has developed an alternative to OPEN, called Tempus, that can handle native QuarkXPress and Adobe PageMaker files in addition to PostScript and PDF; OPEN is limited to the latter formats. Current Tempo-compliant software products include DK&A's InPosition and Trapper and EFI's Fiery Booklet Maker. DK&A is inviting other software developers to create Tempus-based products.

High-Speed Pipelines File-transfer software does you little good if you don't have a fast data pipeline. Fortunately, several vendors have introduced products and services targeted at the file-transmission requirements of graphics professionals.

WamNet (612/204-3100, *www.wam.net*), a high-speed telecommunications service for graphics professionals, has established a network of large prepress and printing companies that can accept jobs sent through the service. A recently introduced $250-per-month low-volume option lets you transmit up to 750MB of data with a guaranteed throughput of 40MB per hour, the company says. You can send additional data for 35 cents per megabyte. Higher-volume services are also available. The company also announced a service called WamProof that lets clients automatically print on color-proofing devices at remote locations.

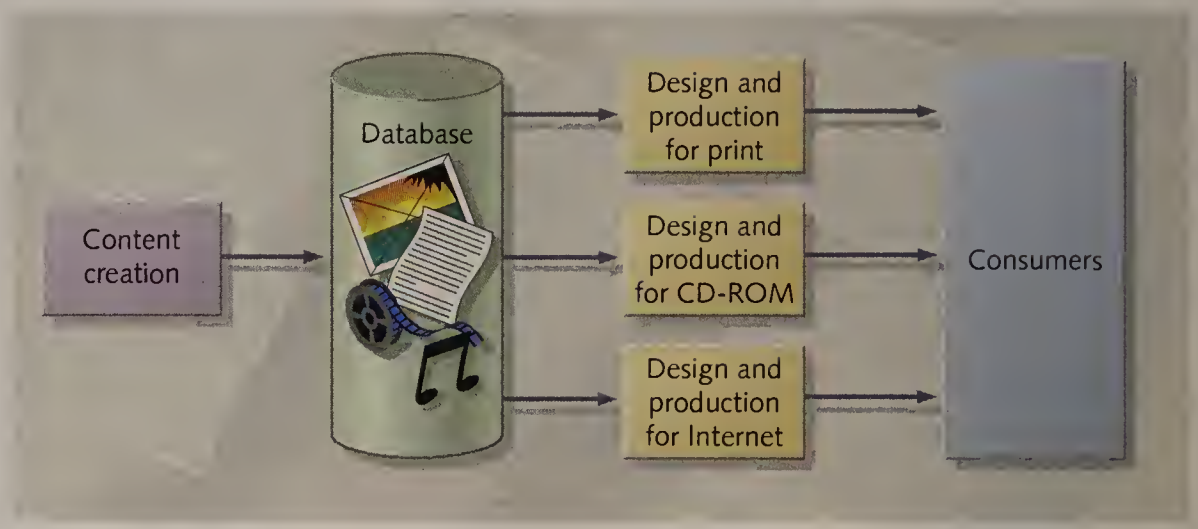
MCI, British Telecom, and Scitex have announced the Digital Graphic Network service, which will permit high-speed file transfer among designers, advertising agencies, stock-photo houses, service bureaus, and printers.

MCI also sponsored development of a $129 Adobe Photoshop plug-in called Genuine Fractals, from Altamira Group (818/556-6099, *www.altamira-group.com*), that compresses scanned images into resolution-independent Fractal Image Files of 1MB to 2MB. Once transmitted, these files can be enlarged to between 400MB and 500MB—even if the original scan was only 10MB to 25MB.

Another company staking a claim for high-speed file transmission is 4-Sight (617/935-5090, *www.4sight.com*), whose ISDN Manager software uses standard ISDN connections to transmit jobs to service bureaus.

Agfa is using ISDN Manager in a new service called PrintCast that lets you submit jobs to facilities that have installed its ChromaPress digital printing system.

Apple's Vision for Digital Workflow



K. DANIEL CLARK

As vendors like Luminous and Group Logic strive to reduce the barriers between service bureaus and their customers, Apple is promoting its own vision of a digital-media workflow. Apple executive vice president Ellen Hancock recently presented a new model for media production that accommodates CD-ROM and Web authoring as well as traditional print media.

The current model, she said, is driven by print production: at a certain point in a print project, a designer adapts existing text and graphic elements for the Web or CD-ROM. Under the new model, all elements used in print and new media are stored as objects in a central media database, from which various forms of print and online content can be generated in parallel. In addition to permitting the reuse of appropriate media elements, she said, the model is better suited to the immediacy of online communications, because production is not dependent on the print workflow.

What is Apple's stake in this? Chris Gulker, Apple's business development manager for publishing, entertainment, and new media, says that WebObjects, the sophisticated Web authoring software that Apple obtained as part of the Next acquisition, is the glue that will enable databases and other software components to work within this new-media–production model. The software currently runs under Windows NT and Unix, but Apple promises a Mac OS version by the end of the year. The current price tag is $5000; however, Gulker says the price is likely to drop as Apple targets the software at a broader market.

Gulker admits that the new workflow model is geared toward the largest publishing operations—companies like Time Warner and R.R. Donnelley & Sons that manage huge volumes of information. And support for the model is far from unanimous. On hand for Hancock's presentation at Seybold New York, Quark chairman Tim Gill argued that the needs of electronic and print media are so different that few elements can be reused in the manner suggested by Apple's proposal.—STEPHEN BEALE

TIMOTHY COOK

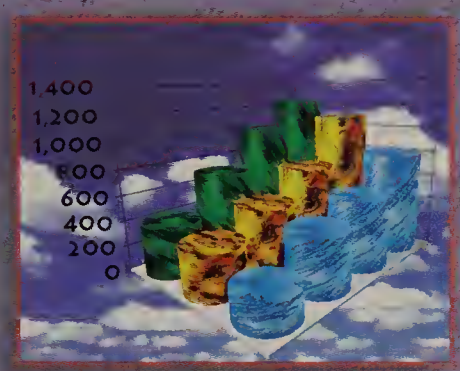
Are you losing sleep dreaming of a sexy spreadsheet and

mind-blowing charts !?!

Imagine a spreadsheet with more features than ClarisWorks™, but without the bloated feeling of Microsoft Excel™!

ntroducing Adrenaline Numbers & Charts 1.0™

Have you ever imagined being able to transform your existing Excel data into amazing, shaded, texture-mapped, true 3D charts using any 3D object you like ?

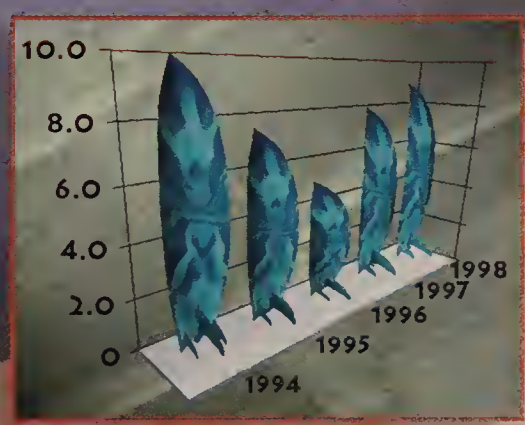


SURFBOARD SALES

Model	1995	1996	1997	1998	1999
Caffeine Overkill	3.2	8.3	17.1	24.3	36.9
WaveCrusher	5.0	12.7	14.3	22.1	29.7
Tsunami 550 GTI	7.4	14.2	16.8	24.9	34.0
OutOfControl 700/MB	11.1	34.5	61.2	76.7	89.1
Trueman Big Kahuna	2.2	4.1	31.6	50.5	66.3
Northern Impact II	12.0	22.5	27.8	34.9	42.1
HyperActive XV400	4.2	14.0	36.7	44.1	46.2
HyperActive XV7000	5.9	18.7	45.9	51.2	57.8
Terminator One	0.2	7.8	58.2	70.3	85.3
TOTAL:	51.0	129.0	251.4	328.7	402.1

Imagine if you could save those charts as pictures, 3D objects or QuickTime™ movies ? You could use those charts in a presentation program, a video program or put them out on the Internet !

With its support for advanced Apple technologies like QuickTime, QuickDraw 3D™, AppleScript™ and more, Adrenaline Numbers & Charts takes the MacOS™ to the max !



Edition

A1

=Max(AdrenalineRush)

With Adrenaline Numbers & Charts 1.0, you might not get more sleep, but you'll have a lot more fun.

renaline Numbers & Charts is available right now at Cyberian Outpost, the Mac-friendly ›l place for computer stuff. You may order via their web site at http://www.cybout.com/ or 1-800-856-9800. Adrenaline Numbers & Charts is also available from MacWarehouse in USA at 1-800-397-8508 or in Canada at 800-268-7805. An electronic version of Numbers & arts is available from C/Net at http://BuyDirect.com

CYBERIAN Outpost
1-800-856-9800

997 Adrenaline Software, Incorporated, All Rights Reserved. Adrenaline Numbers, Adrenaline Charts, ObjectTransporter, 3D mensioning and the Adrenaline logo are trademarks of Adrenaline Software, Inc. All other trademarks are the property heir respective owners.

Circle 23 on reader service card

Ready for MacOS 8

As the first spreadsheet and charting package to be released in over two years, Adrenaline Numbers & Charts is optimized for the technologies of today's MacOS system software as well as tomorrow's MacOS 8.

Adrenaline Numbers & Charts 1.0

Features

- *PowerPC™ native calculation kernel*
- *149 essential spreadsheet functions*
- *TrueDimensioning™ formatting (pixels, inches, cm, points, picas) for spreadsheets and charts*
- *Advanced scripting capabilities*
- *Export spreadsheets as HTML*
- *Microsoft Excel 5.0 data compatible*
- *23 2D/3D chart types to select from*
- *Simple interface for direct manipulation of objects*
- *Texture mapping of images and movies*
- *Import 3D objects (3DMF files)*
- *Full QuickDraw 3D support*
- *Innovative ObjectTransporter™ technology for creating custom 3D charts*
- *Complete OpenDoc support*

System requirements

- *Macintosh with PowerPC processor*
- *System 7.5.3 or later*
- *16 MB of physical RAM*
- *5 MB of hard disk space*

Adrenaline Software, Inc.
1400, boulevard du Parc technologique
suite 210
Québec (Québec)
G1P 4R7 CANADA
info@adrenaline.ca
www.adrenaline.ca

systems

Possible Hope in Licensing Fracas

OUTLINE OF AN AGREEMENT EMERGES

by Galen Gruman

After months of skirmishing over the terms of Mac OS licenses, Apple and the clone makers seem to be close to an agreement, according to sources at several licensees. An agreement may be reached by the time you read this, although the sources cautioned that several key disputes remained unresolved at press time. Apple declined to comment.

While he would not discuss the licensing issues, Motorola Computer Group commercial products general manager Dennis Schneider told *Macworld* that Motorola resumed negotiations with Apple in mid-June, after breaking off talks in frustration several weeks earlier. Similarly, Taiwan's Tatung, an IBM sublicensee that has been unable to ship its Common Hardware Reference Platform (CHRP) systems because of delays at Apple in Mac OS support for CHRP, said, "We are happy to learn that Apple is back to the reasonable track, and we are optimistic to have the Mac OS licensing agreement settled down soon."

Apple Loosens Its Control The licensees say Apple finally capitulated on a major demand: that Apple stop dictating through its certification process what technologies the other Mac makers could use. Under the emerging agreement, Apple will develop a set of compatibility tests that the clone makers would use to demonstrate certification compliance, ending Apple's approval of the clone makers' specific engineering approaches and technology choices.

Apple's chief software engineer, Avie Tevanian, recently complained to *Macworld* that the clone makers don't innovate enough. This is ironic, because Apple's current certification process dictates what the licensees may add to the Apple motherboard architectures, and the licensees have long complained that Apple uses the current certification process to restrict their innovation. Tevanian acknowledged this reality and said that he and Apple chief hardware engineer Jon Rubinstein are ensuring that the Rhapsody OS will make it easy for licensees to add technologies to the Mac without Apple's intervention or approval.

Under Rhapsody, Tevanian said, vendors will be able to add their own drivers to support innovations in their CHRP systems.

Not Thrilled The licensees also compromised in the talks, accepting higher licensing fees for Mac OS 8 than they wanted. None would discuss the fees, but they appear to be about $100 per Mac, with higher prices for high-performance systems, up from about $50 under the Mac OS 7.6 license. Licenses for fast systems would cost more.

Executives at several companies said they were by no means happy with the proposed agreement but thought they could live with it for a year or so, giving Apple additional breathing room to adjust to the reality of strong competitors. They said they remain concerned that a year from now, Apple would try to impose more restrictions.

Allies or Parasites? Apple has its own complaints about the clone makers. Rubinstein said that the Mac OS licensees "skim the top off Apple's market" rather than enlarging it. Other Apple executives have echoed this concern, but none would cite possible markets for expansion. Yet the licensees have complained that Apple expects them to sell products in markets that Apple doesn't think it can succeed in or that Apple has already failed in.

Licensees are still concerned about the cozy relationship between Apple's OS and Mac groups, fearing that Apple will tweak the OS to its own hardware designs while assigning a lower priority to the licensees' OS needs. Apple has clearly decided to focus on its own requirements first: "My biggest customer is this guy," Tevanian said, pointing to Rubinstein, during an interview with *Macworld*. Both hastened to express their support for the need for Mac licensees to grow the Mac platform.

SUZANNE ROADY

Fargo Printer Strives for the Elite

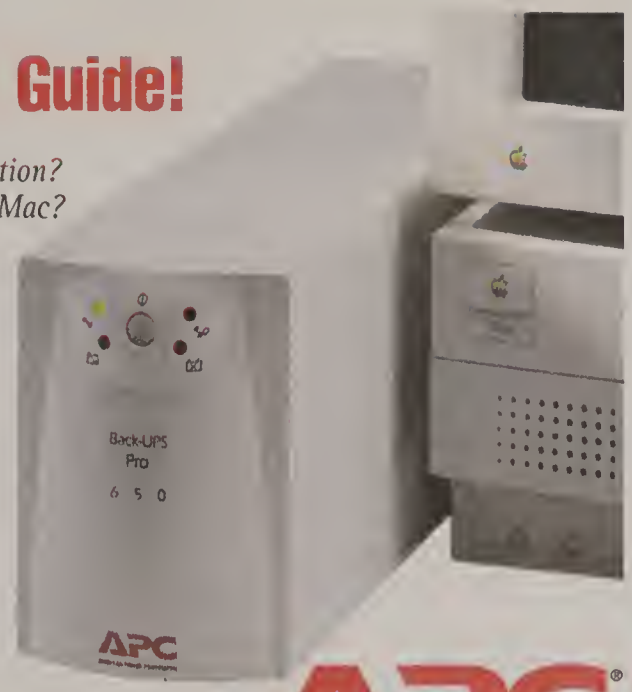
Photo-quality ink-jet printers may be the current rage, but many graphic artists still prefer the continuous-tone quality of dye-sublimation output. The $2195 PrimeraPro Elite from Fargo Electronics (612/941-9470, *www.fargo.com*) continues the company's tradition of offering inexpensive color printers that combine dye-sublimation and thermal-wax transfer technologies. The dye-sub mode offers the best quality, while the thermal-wax mode uses less costly consumables, about 60 cents per sheet compared with $3.30 for dye-sub output.

New from Fargo is a dye-sub ribbon called FotoShield that adds a clear, UV-resistant overlay to the print; a package that includes the ribbon and 50 receiver sheets costs $190.

The Elite can produce an A4-size dye-sub print in about 4.5 minutes, Fargo says, which is almost three times faster than its predecessor, the PrimeraPro. The maximum printable area has been slightly expanded to 8.5 by 11 inches. Maximum resolution is 600 by 300 dpi. Adobe PostScript Level 2 is a $466 option.—STEPHEN BEALE

FREE 60-page Solutions Guide!

What are the myths and musts of Macintosh protection?
What are the top tips for adding reliability to your Mac?
Get your FREE copy and find out!



❑ **YES!** Please send me my FREE Power Protection Handbook.

❑ **NO,** I am not interested at this time, but please add me to your quarterly newsletter mailing list.

Name: _____

Title: _____ Company: _____

Address: _____

_____

City: _____ State: _____ Zip: _____ Ctry: _____

Phone: _____ Fax: _____

# of Macs on site _____

Brands of UPS used: _____ # _____

Brands of Servers used: _____ # _____

APC®

(888) 289-APCC x8188
Fax: (401) 788-2797
http://www.apcc.com

©1997 APC. All Trademarks are the property of their owners. BP10EBRC • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

Dept. D7-PR

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 36 WEST KINGSTON RI

POSTAGE WILL BE PAID BY ADDRESSEE

APC®
AMERICAN POWER CONVERSION

DEPT. D7-PR
132 FAIRGROUNDS ROAD
PO BOX 278
WEST KINGSTON RI 02892-9920

No Power? No Problem.

Keep computing.

Power problems attack computers relentlessly. Did you know that you have a better chance of winning the lottery than of escaping power problems? They are the single largest cause of computer data loss and hardware damage. When a surge hits an unprotected peripheral, it can blaze down serial cables and datalines, and toast your expensive Mac. Or, if a power sag locks your keyboard or reboots your computer before you've saved work, or while you are downloading from the Internet, you can lose data, time and money. In many cases, valuable time and energy are spent searching for software conflicts when the problem is actually power related.

Unmatched Power Protection

APC's Back-UPS Pro provides instantaneous battery backup protection for all power paths leading to your Mac, (AC, phone and data lines). Back-UPS Pro keeps your equipment safe from power events including surges, swells, brownouts and blackouts - and keeps you safe from downtime that power problems inevitably produce. Back-UPS Pro provides high-performance Mac workstation protection, preventing data loss, increasing your system's lifespan, and improving productivity.

"I am the product development manager for Radio Flyer, but quite often, I work at home, where I pay for all the equipment... Here, I don't have an extra $1200 to replace the DAT tape backup... an investment in APC is more cost effective for me. I have lots of time invested in my data, and Back-UPS Pro protects that as well. Not to mention the unit is well-designed, easy to use, and APC provides great customer service to boot."

Antonio Pasin, Radio Flyer

Experts Insist on UPS Protection

Experts agree, the consequences of not protecting network workstations are great and costly. Today's high-performance Macs demand reliable power protection to perform efficiently in the event of an unpredictable power event. Automatic Voltage Regulation (AVR) provides complete protection against extended brownouts or overvoltages, without battery drain. CellGuard™ intelligent battery management extends battery life with fast recharge and deep discharge protection. User replaceable, hot swappable batteries can be easily swapped out without sending the UPS out for service.

Back-UPS Pro Protects Your Entire System

Designed for 100% protection, Back-UPS Pro includes built-in 10Base-T network cable/phone line surge protection, and is backed by a $25,000 guarantee against equipment surge damage (see policy for details). APC has won more awards than all other UPS vendors combined. No wonder more than 8,000,000 satisfied APC customers say, "Protect ME! with APC".

"Ultimately, its more a question of when - and not if - you should buy a UPS... UPS power protection has never been cheaper or more convenient."

MacWEEK

"If you have a server and don't have a UPS, you're playing with fire."

MacUser

Under the Lifetime Equipment Protection policy, APC will repair or replace connected equipment damaged by surges, including lightning strikes, up to $25,000. Replacement amounts vary by product. See policy for details.

FREE! 60-page Solutions Guide

Just fax or mail this coupon to APC for your FREE 60-page Power Protection Handbook and learn the 10 "Do's and Don'ts" of protecting your Mac.

☐ **YES!** I'd like a FREE Power Protection Handbook.

☐ **NO** I'm not interested at this time but please add me to your quarterly newsletter mailing list.

Name: _____

Title: _____

Company: _____

Address: _____

_____

City/Town: _____

State: _____ Zip: _____ Country _____

Phone: _____

# of Macs on site? _____

Brand of UPS used? _____ # _____

Brand of Servers used? _____ # _____

APC® Dept. D7-PR

(888) 289-APCC x8188
Fax: (401) 788-2797
http://www.apcc.com

©1997 APC. All Trademarks are the property of their owners. BP10EF • (800)347-FAXX PowerFax • CompuServe: GO APCSUPPORT • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

APC has won more awards for reliability than all other UPS vendors combined.

Circle 72 on reader service card

Systems WATCH

BY TOVA FLIEGEL

Summer of Price Cuts

Systems vendors —including Apple—are paving the way for their new fall lineups by slashing prices on existing systems.

Power Computing's (512/388-6868, *www.powercc.com*) "Summer of Power" promotion touts free RAM as the next best thing to free love. As of July 1, the former 32MB versions of the PowerTower Pro 250 and 225 now have 128MB of RAM, and sell for $3995 and $3495, respectively, down from $4495 and $3695. The 16MB version of the 225, now with 128MB of RAM, was reduced from $3195 to $2995. There's no change in PowerCenter Pro prices, but the $2395 16MB PowerCenter Pro 210 includes a free RAM upgrade to 64MB. Through July 31, you can get $100 rebates on the entry-level PowerBase 240 and 200, bringing the 240 to $1499 and the 200 to $1299.

Apple's (408/996-1010, *www.apple.com*) high-end Power Mac 9600/200MP drops from $4699 to $4199; the $4200 9600/233 is now $3499; and the $3699 9600/200 is cut to $3199. Formerly $3199, the Power Mac 8600/200 is now $2999. The midrange 7300/200 (formerly $2699) and 7300/180 (formerly $2399) are now $2299 and $2099.

DayStar Digital (770/967-2077, *www.daystar.com*) announced price cuts ranging from 15 to 24 percent on multiprocessing systems. The Genesis MP 900, with four 225MHz 604e CPUs, is $8499, down from $9999; the Genesis MP 800, with four 200MHz 604e's, is $6499, down from $8499; and the Genesis MP 450, with two 225MHz 604e's, is $4999, down from $5499.

New at the High End

Slated for August release, the Umax (510/226-6886, *www.supermac.com*) SuperMac S910/250 will sport 64MB of RAM and 1MB of cache; its predecessor, the S900, comes with 32MB of RAM and a 512K cache. The $4695 S900 also includes a faster (7200-rpm) 4GB Ultra SCSI drive and 100BaseT Ethernet. In the fall, a $495 CacheDoubler card will add 1MB of in-line cache to the S910, S900, and J700.

Motorola's New 250MHz 604e Debuts

Motorola's (*www.mot.com/powerpc*) faster next-generation PowerPC CPU is code-named Mach 5. Improving on the design of the previous 604e's, the 250MHz Mach 5 CPU consumes less power (5 watts instead of 14.5w), is about one-third the die size, uses less voltage (1.8 volts instead of 2.5), and runs cooler. Motorola says the Mach 5 is suited for high-end systems, while the Arthur G3 (PowerPC 750) series is for portables and most desktop machines. Mach 5 speeds should surpass 300MHz before the end of the year. According to Motorola, you should begin seeing the first Mach 5's in systems released this fall.

"INSIDE THE NEXT-GENERATION MACS"

continued from page 33

The ROM Bottleneck Although CHRP systems are almost here, the effort is not over. In the longer term, Apple faces an unknown amount of work and time to make a Mac OS that removes all vestiges of the Mac ROM.

The ROM contains part of the Mac OS, and the various Mac models' ROMs have always been written with specific hardware configurations in mind. That's why OS updates are sometimes required to make the Mac OS run on new systems. (For example, a hardware dependency in the ROMs used in the Power Mac 7300, 8600, and 9600 this winter caused them not to run Mac OS 7.6, forcing Apple to develop Mac OS 7.6.1 after the new Power Macs were shipping.

Such dependencies could also cause a nightmare for CHRP designers and Apple OS engineers, since a CHRP system using components that the OS doesn't know about could require an OS patch, just as happens in Apple's proprietary Mac designs. But with CHRP, which is open to a variety of components—more than Apple uses now—the potential for incompatibilities is much greater.

This means that Mac makers will at first rely on tried-and-true components, and will need to introduce new components slowly so they have time to create patches that allow compatibility.

Even so, expect some compatibility issues to surface initially. For example, because of a flaw in the design of common IDE controller circuits, the first CHRP-enabled Mac OS (version 8.0, due out in late July), won't support IDE drives. Mac makers say there are several other minor compatibility issues with various components in Mac OS 8. Because of these issues, Apple will release a Mac OS 8 update—varyingly called Mac OS 8 1.1 and CHRP OS 1.1—that will work around the IDE controllers' flaw and fix the other compatibility issues. That update should be available in late August or September, and most Mac makers will delay their systems until it is available.

ARNOLD TIOSEJO

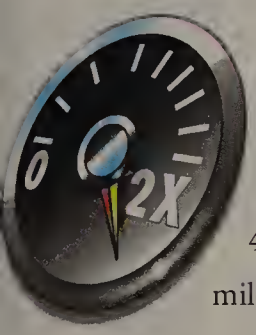
You'll soon be seeing Macs from Umax and Motorola that feature CHRP motherboards.

Jon Rubinstein, chief systems hardware engineer at Apple, says he's not sure how long it will take to wean the Mac OS completely from hardware dependencies. Eighteen months was an off-the-top-of-the-head guess, he said.

Apple needs to create a hardware abstraction layer (HAL) that separates the hardware components from the operating system, eliminating the need for hardware-specific code in the OS. The HAL sits as an intermediary between the OS and the motherboard; the motherboard communicates with the HAL via software drivers that translate the peculiar needs of hardware components into standard descriptions for the OS. Rubinstein says Apple is taking a HAL approach for its Rhapsody OS.

continues

RETROSPECT TURNS THE BIG 4.0!



Retrospect 4.0 backs up data at twice the speed.

Everybody's favorite backup software has hit 4.0. And a true milestone it is!

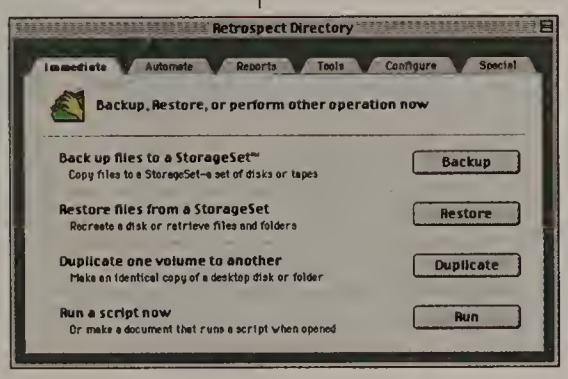
Retrospect 4.0 is seasoned with enough real-life experience to perform like no other backup program.

Compared to version 3.0, it does more, it looks better, and it has big time performance improvements.

If you're a network administrator, new TCP/IP support means you'll back up twice as many computers in the same amount of time. And we're talking huge volumes—up to a full terabyte—and millions of files. Installation is a breeze—4.0 can update every client on the net and you won't have to change a single script.

Retrospect is totally compatible with the new Mac OS 8, so upgrading won't put you behind the eight-ball.

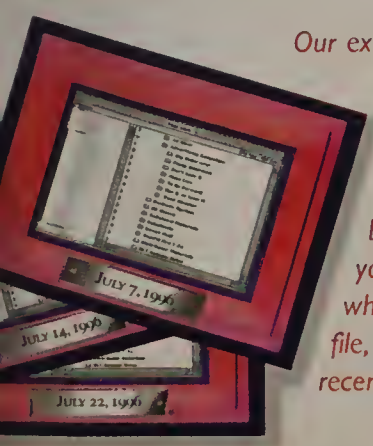
Everyone wants a smooth upgrade to Mac OS 8 and Retrospect is extraordinarily compatible with both Systems 7 and 8. Public service announcement: Make sure to back up before you make the move!



Retrospect's interface received recognition from Apple for Human Interface Design Excellence.

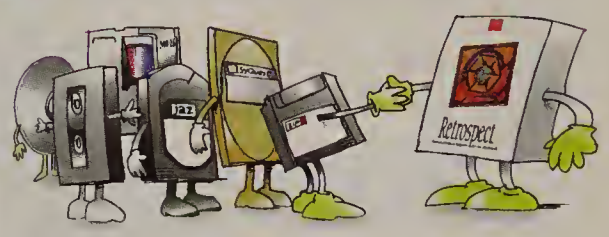
Speaking of smooth, now you can get backup status by email or pager. You, too, can have your beeper go off at a dinner party just like the doctor next to you.

There's more. Now you can save a browser to a file, or export a catalog to a database. We've included a whole slew of custom drivers to assure compatibility with almost any drive you could name from tape to MO to CD-R. There's even an automatic reminder to clean the tape heads.



Our exclusive SnapShot™ technology now lets you recover not only the latest, but every backup session, so you can restore the whole history of your file, not just your most recent backup.

Celebrate Retrospect's big 4.0 with us—call 1-800-982-9981 and treat yourself to a high-speed upgrade.



For Zip, Jaz, SyQuest, MO, or any removable drive, new 4.0 is the perfect team player.

dantz®

To go forward, you must backup.®

© 1997 Retrospect is a registered trademark of Dantz Development Corporation. 4 Orinda Way, Building C, Orinda CA 94563. Phone: 510.253.3000. Fax: 510.253.9099. **www.dantz.com** *Email: info@dantz.com (automated response) or upgrades@dantz.com. All other trademarks are property of their respective holders.*

Circle 26 on reader service card

See Us At The Macworld Expo Booth# 5512

Apple has completed the work to eliminate the ROM chip, but the "ROM in RAM" solution that should be available with Mac OS 8 1.1 merely moves the ROM into software. Still, ROM in RAM helps Mac makers in two ways:

• They don't need to worry about availability of a physical part. The need for a physical ROM chip can slow down Mac makers' ability to deliver CHRP systems when there are supply hiccups.

• They can reduce the number of patches in the Mac OS, since they can replace a problem in the ROM rather than load a patch. (With physical ROMs, the OS can't remove bad code, so it has to load a patch from the Extensions folder.)

But until the need for a ROM is completely removed, Mac makers still have to be careful when they adopt new or modified components.

Conflicted Apple Sources at several companies tell *Macworld* that some of the delay in CHRP is due to political issues—that Apple is concerned about releasing a floodgate of CHRP systems that could further erode sales of its profitable Macs. Apple denies this, refusing to discuss specifics.

With the ROM moved to RAM, Apple cannot control how many systems a Mac maker has by rationing the ROM chips. Within Apple, a faction was opposed to losing this control, according to sources, especially now when Apple has been late in shipping its profitable systems, such as the 8600/200, and has seen Mac licensees aggressively target the high-end market. However, the licensees also have helped keep the overall Mac market share from dropping precipitously even as Apple struggles with supply problems.

Another bone of contention has been licensing terms for Mac OS 8 (which includes CHRP systems). For several months, Mac licensees voiced frustration over what appeared to be delays in licensing Mac OS 8 and attempts by Apple to impose a certification process on CHRP-based systems that would give Apple some control over engineering choices (see "Apple Pins Hopes on Gossamer," *News*, August 1997, and "Apple's Clone Support in Question," *News*, June 1997).

And Apple has resisted efforts to add notebook support to the CHRP specification as it has sought to prevent competing Mac notebooks. (Apple has also refused to license the Mac OS components required for notebooks.)

Mac makers have been a bit skittish about CHRP for the last several months since Apple officials said that the company will not entirely adopt CHRP itself. This raised fears that CHRP is a Trojan horse strategy that will make Mac OS support for CHRP a low priority, while forcing licensees to use only those technologies Apple has endorsed through its certification authority. Licensees fear that if these endorsed technologies are inferior to what Apple uses in its own systems, CHRP could become a vehicle for holding licenses back.

At press time, Apple seemed to have taken a more moderate stance, and the licensees were cautiously optimistic that an acceptable solution to all these issues would be in place by the time you read this. (See "Possible Hope in Licensing Fracas," elsewhere in this section. To follow this ongoing story, see Macworld Daily at *www.macworld.com/daily/*.)

A Rocky Road CHRP has not had a smooth ride from concept to completion. It even had a rocky birth: Apple, IBM, and Motorola hammered out the CHRP specification—which was also known briefly as the PowerPC Platform (PPCP)—in spring 1995, about six months after the companies joined forces to create an industry-standard architecture around the PowerPC in November 1994. Until that decision, IBM had been promoting its PowerPC Reference Platform (PReP), which did not support Mac-specific technology (see "Apple Says No to IBM's Macintosh," *News*, October 1995).

Even once the CHRP specification was finalized in 1995, CHRP was delayed. Apple was supposed to have a version of the Mac OS that ran on the CHRP architecture in July 1996, but that was delayed along with the abortive Copland OS. Skirmishing over the CHRP specification helped slow down progress. Apple's CHRP OS was also delayed this year.

Mac OS 7.6 for CHRP was completed this spring, but Apple decided not to release it because Mac OS 8 was imminent.

Although there's still a chance for further delays, it appears that with the release of Mac OS 8 1.1 late this summer, Mac makers will be able to deliver on the promise of CHRP, taking the technology from their labs to your desk.

GIBSON

NEC Gets Its Printer in Gear

NEC Technologies (630/775-7900, *www.nec.com*), which pulled out of the Mac printer market in 1996, is back with the SuperScript 1260. The 600-dpi monochrome laser printer is the first Mac output device to include Adobe's PrintGear technology, a low-cost alternative to PostScript. It won't print PostScript files, but uses a RISC-like architecture to accelerate graphics rendering. A Mac PrintGear driver is included.

The SuperScript 1260 offers 12-pages-per-minute output speed; a 250-sheet cassette; and a manual feed for envelopes, transparencies, and other unusual stocks. NEC expects it to sell for $800, plus $300 for a network option that supports TCP/IP, NetWare, Windows NT, Windows 95 peer-to-peer, and EtherTalk.—STEPHEN BEALE

Some Tools Change the Way We Work. Forever.

THE WHEEL

Tired of going around in circles shooting, digitizing, editing, and compressing digital video? Maybe you haven't had the right tool for the job. Let Hitachi's new MP-EG1A MPEG camera put you in the fast lane. It's the only digital video camera in the world that creates MPEG files—and in real time, no less! Now you can transfer MPEG or JPEG files by directly connecting to the PC-type III slot in your PowerBook or using the optional SCSI Adapter (MPADS1A). And nothing's simpler than dropping the MPEG video clip into your QuickTime™ 3.0 Mac software. That's a real productivity tool.

THE MPEGCAM

You'll get a lot more mileage out of the MP-EG1A, too. Record 20 minutes of MPEG-1 digital video. Snap 3,000 JPEG stills—just a click away from pasting into Web pages and layouts. Or grab 4 hours of audio. With MPEG, JPEG, and audio in a compact one-pound package, the MP-EG1A is sure to become the heart of your production tool chest. And with photo-quality auto-feed printing (only 50 seconds per page), the Hitachi VY60DA digital photo printer makes the perfect companion tool. So why spin your wheels when you can tool around in the Hitachi MP-EG1A today!

Capacity specifications are approximate.

HITACHI

A TOTALLY NEW VISION

www.mpegcam.net

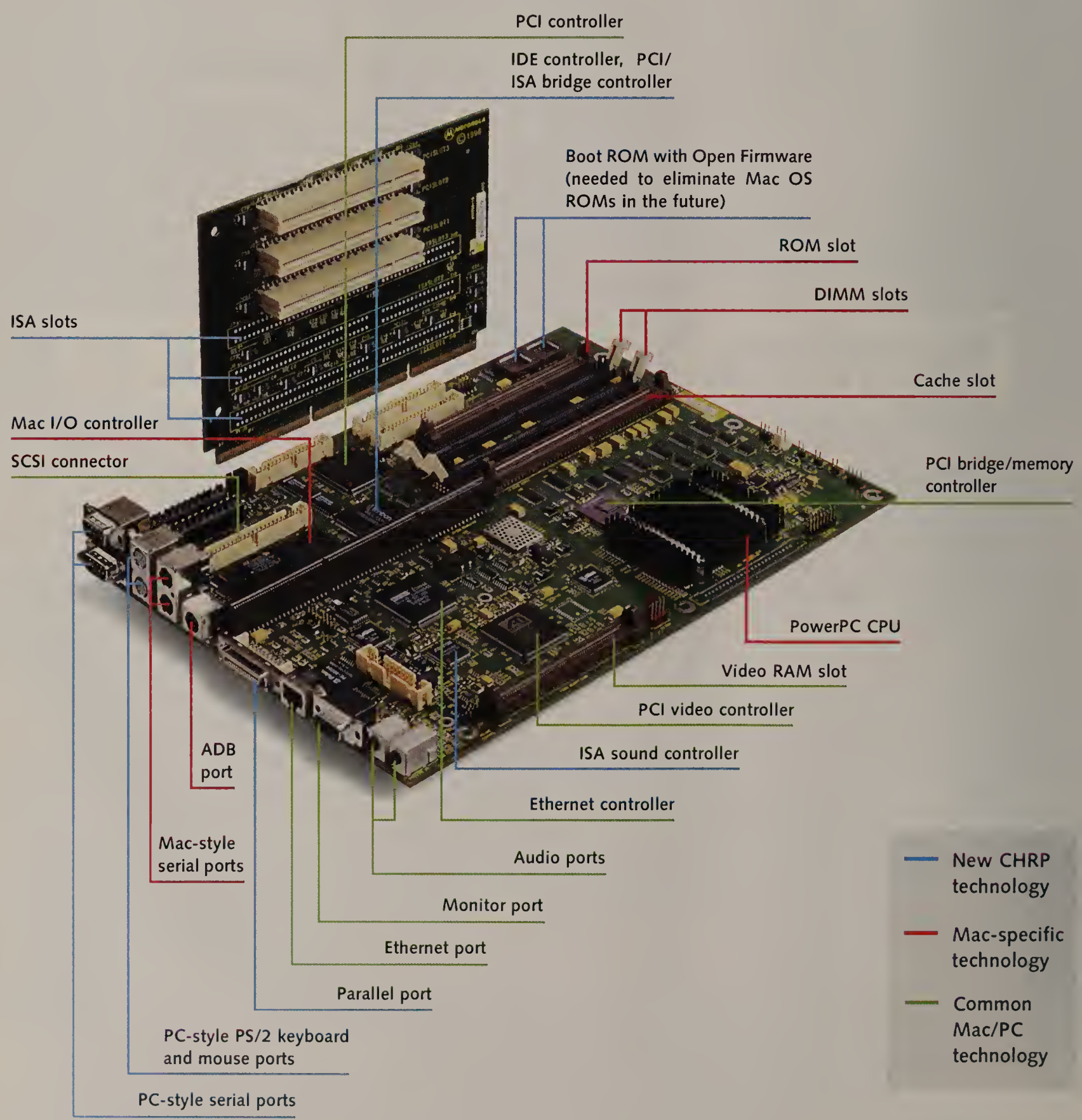
1-800-HITACHI FAX: 1-770-279-5699

Circle 82 on reader service card

© Copyright 1997 Hitachi, Ltd. All other brand and product names are property of their respective owners.

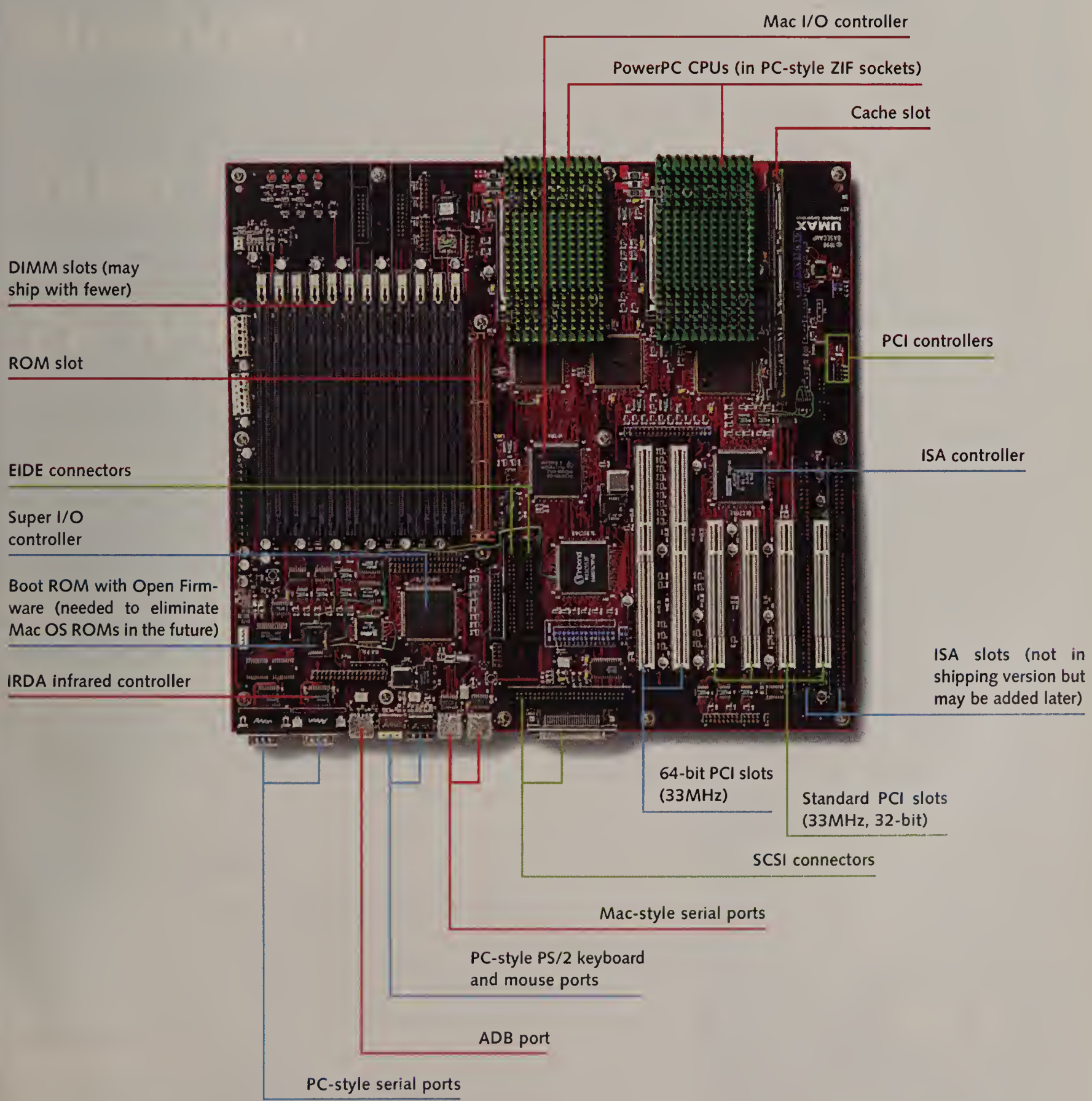
Up Close: What Two Open Mac Designs Offer

MOTOROLA VIPER PROTOTYPE



Since it was announced in November 1995, the Common Hardware Reference Platform (CHRP) has been held out as a cross-platform architecture that would merge the best of the PC with the best of the Mac, letting multiple operating systems (Mac OS, Windows NT, Unix, and OS/2) run on one system. Today, the OS list has been shortened considerably to just the Mac OS, Unix, and BeOS. But the CHRP architecture is still poised to deliver on the hardware promise. As these prototype motherboards show, Mac makers are taking advantage of popular—and inexpensive—PC technologies to make the Mac even more capable. And faster, too.—GALEN GRUMAN

UMAX BASECAMP PROTOTYPE



PHOTOGRAPHS BY KEVIN CANULAND

Presenting the 56K modems that didn't begin as 33.6 modems.

- NEW DATAPUMP & DAA
- FLASH ROM
- CUSTOMIZED FIRMWARE
- 4X SRAM PERFORMANCE
- DTE RATE TO 230 KBPS

"THE BEST COMBINATION OF FAST TRANSFER SPEEDS AND CONNECTION RATES" –PC WEEK

Visit www.diamondmm.com/56now to win a SupraExpress 56 modem!

SupraExpress 56 modems: built from the ground-up. Unlike other 56K modems, Diamond Multimedia's affordable family of 56K modems were engineered from the ground-up to deliver the optimal 56K performance. Because, instead of rebuilding existing 33.6 modems, we designed totally new components for 56K. Our new datapump, digital signal processor, and crystal are all faster than ever before. We've also added four times more SRAM to speed the process and we've doubled the DTE rate for the highest possible throughput. Finally, customized firmware optimizes each modem's speed and its ability to connect and stay connected. So call 1-800-727-8772 or visit us on the Web for the facts. Then prepare yourself to experience the ultimate in 56K.

SupraExpress is a trademark of Diamond Multimedia Systems, Inc. All other trademarks are the property of their respective owners. ©1997 Diamond Multimedia Systems, Inc. All rights reserved.

DIAMOND MULTIMEDIA

Accelerate your world.

Circle 83 on reader service card

New Products

THE LATEST MACINTOSH RELEASES

Edited by Keith Mitchell

COMMUNICATIONS

Ace in the Hole

If you compute on the go, you don't want to gamble on connectivity options. Ositech's (519/836-8063, *www.ositech.com*) $399 MacJack of Diamonds combines a 33.6-Kbps modem and 10BaseT Ethernet port on a single PC Card.

DISPLAY

More Monitor

Looking for a high-resolution monitor? LG Electronics (201/816-2000, www.*lgeus.com*) has two to pick from. The $1600 Studioworks 28i offers a 20-inch viewable area, maximum 1600-by-1280-pixel resolution, and on-screen adjustments. The $800 Studioworks 78D is a 17-inch monitor with maximum 1600-by-1280-pixel resolution, a Diamondtron tube, and memory modes to store up to 40 different settings.

Acuris 3d AcuWorlds

GRAPHICS

Lions and Tigers and Bears

Acuris (215/493-4302, www.*acuris.com*) has joined forces with MetaCreations (formerly MetaTools) to create 3d AcuWorlds, a $299 package that combines a special version of KPT Bryce 2 with more than 100 models of animals, vegetation, and humans. Available in Bryce and DXF format, the models allow 3-D designers to create populated worlds and landscapes. The models are available separately for $149.

Line-Art Automation

Adobe Systems (408/536-6000, *www.adobe.com*) has a new version of its popular autotracing program, Streamline 4.0. The upgrade adds the ability to perform multiple conversions on a single image, new tools that control curves and lines, and more direct control over the conversion process. The $199 product preserves the color from original images when converting to color line art.

MULTIMEDIA

No More AM Radio Sound

Tired of hearing poor-quality sound from your Mac's on-board speaker? Two new products offer answers.

- The Audio Signal Enhancer from Z-Man (616/246-7929, www.*z-man.com*) is designed to take the sometimes excessive treble and harshness out of digital sound. The $198 hardware device uses a vacuum tube to achieve the effect, and plugs in with standard RCA connectors.
- MidiLand (909/592-1168, www.*midi-land.com*) has a new low-cost speaker system with a subwoofer. The $79 Crescendo includes two full-range speakers and a separate subwoofer with built-in 3-D surround sound and 25w output.

NETWORKING

Building Bridges

Network administrators can expand their networks to other buildings without installing cables. Skyway Bridge from Digital Ocean (913/888-3380, *www.digitalocean.com*) wirelessly connects Ethernet-compliant networks in multiple buildings at distances up to 20 miles apart. The $3895 product transmits data at up to 2 Mbps. You get up to 18 simultaneous voice lines and 3 fax lines.

Nonstop Server

The Internet Station from Dayna Communications (801/269-7200, *www.dayna.com*) is a $600 communications server that combines router and modem-pooling functions. It provides up to three simultaneous ISDN or analog connections, two PC Card slots, and one serial port. It gauges outgoing Internet traffic, automatically disconnecting you after a set time if there's been no activity from your computer.

ONLINE

Add to Your Web Tool Belt

Digital Frontiers (847/328-0880, www.*digfrontiers.com*) has added GIF image-editing capabilities to its HVS Color Adobe Photoshop plug-in. The new version, called HVS ColorGIF 2.0, includes a stand-alone GIF animation editor and batch-export capabilities. It costs $99; current owners can upgrade for $49.

PRINTING

The Tiniest Print Server

XCD (714/573-7055, *www.xcd.com*) has created a $195 print server that fits inside a Hewlett-Packard LaserJet 6P. The Pony Printer Server uses a 10BaseT Ethernet connection and can simultaneously support up to three protocols, including TCP/IP, AppleTalk, Windows 95 peer-to-peer, and IPX/SPX. It is compatible with most popular network operating system printer utilities, including Apple's LaserWriter and Windows Print Manager.

PRODUCTIVITY

Database Evolution

Helix Express 4.5 isn't part of a DNA strand—it's the latest evolution of Helix Technologies' (847/465-0242, www.*mcs.net/~hxtech*) $795 relational database. The update increases speed, includes new keyboard shortcuts, and lets you add items to each page in a document based on the user's actions. Helix has also added support for scripting.

SCIENCE/ENGINEERING

Share Your Statistics

StatView, the statistical-analysis program from Abacus Concepts (510/540-1949, *www.abacus.com*), now runs on AppleShare, Windows 95 and NT, and Novell networks. The new network version lets multiple users work on the same project, even in mixed-platform networks. Prices begin at $695 per user. Site licenses and academic discounts are available.

STORAGE

Megs Over Easy

Need to move large files? The $449 DynaMO 640si from Fujitsu (408/432-6333, www.*fcpa.com*) is an internal 640MB magneto-optical

Fujitsu's DynaMO 640si

drive. It includes a Macintosh driver, but many Mac systems will require an additional frame kit available from other companies. Blank 640MB cartridges cost $25. m

VENDORS: TO HAVE YOUR PRODUCTS CONSIDERED FOR PUBLICATION IN *NEW PRODUCTS*, SEND A PRESS RELEASE WITH PRODUCT DESCRIPTION, PRICE, AVAILABILITY, AND CONTACT INFORMATION FOR READERS, PLUS OPTIONAL PHOTO OR SCREEN SHOT, TO NEW PRODUCTS EDITOR, *MACWORLD*, 501 SECOND ST., SAN FRANCISCO, CA 94107; *NEW_PRODUCTS@MACWORLD.COM*.

National Software Testing Laboratory, Inc. (NSTL) found the EPSON Stylus Color 600 outperforms avg. speeds of the HP DeskJet 694C by 31% and the Canon BJC-4200 by 38%. Print speeds tested with Windows 95 and Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Adobe PageMaker and Adobe Photoshop. Prices may vary
EPSON and EPSON Stylus are registered trademarks of Seiko Epson Corp. Micro Piezo is a trademark of Epson America, Inc. ©1997 Epson America, Inc.

YOU'VE GOT TO SEE IT IN EPSON COLOR.

See the tiny bubbles? So did the new EPSON Stylus® Color 600 ink jet printer. 1440 x 720 dpi. Incredible detail. Brilliant Photo Quality color. Laser-sharp black text. All from our exclusive Micro Piezo™ Technology for a smaller, cleaner, more consistent dot. You'll get award-winning print quality—at overall print speeds 31% faster than any competitor's. With PC and Mac compatibility. Starting around $299. Call 1-800-GO-EPSON and ask for Operator 3010 or visit us at www.epson.com to hear more. And see everything.

INTRODUCING THE WORLD'S FIRST 1440 DPI COLOR INK JET PRINTERS.

EPSON Stylus Color 600 about $299. Photo Quality for home and office.

Reviews

Director 6 Multimedia Studio

EASIER AUTHORING,

POWERFUL WEB LINKS

JAMES STEINBERG

THE CHALLENGE: TO MAKE Director, Macromedia's venerable multimedia-authoring powerhouse, easier to use while extending its talents—and without forcing veterans to start from scratch. The verdict: although Director 6 doesn't match the simplicity of some competing authoring programs, it's easier to learn and use than version 5.0 (see *Reviews*, July 1996). Longtime Director users will still find themselves at home and will revel in the new productivity-boosting features, while power-hungry developers will find a feast of high-end features addressing everything from animation to the Web.

Director obviously has the lead role in Director 6 Multimedia Studio, but the supporting cast deserves a mention. SoundEdit 16 2.2 is a powerful, easy-to-use audio editor (see *Reviews*, June 1996); xRes 3 is a solid image-editing package (see the review of FreeHand Graphics Studio in February 1997); and Extreme 3D 2.0 is an industrial-strength 3-D modeling and rendering package (see *Reviews*, April 1997). All the programs have similar interfaces and work well together.

Settling the Score

Director has always had a steeper learning curve than the competition because it takes a frame-by-frame, timeline-oriented approach: when you run a project, playback proceeds sequentially unless a script tells it to jump to a specific frame. This operating style is ideal for creating animations, but it means extra work when you're creating interactive projects such as CD-ROMs. To keep a particular scene visible until, say, a user clicks on a button, you must write a script that tells Director to play that frame over and over again.

By comparison, programs such as mFactory's mTropolis (see *Reviews*, February 1997) and Allegiant's SuperCard (see *Reviews*, May 1997) take a screen-oriented approach similar to that of a publishing program. You create a screen, then add text, graphics, movies, and other media elements. To create a button that leads to a different screen, for example, you choose commands that add the appropriate interactivity. When the project runs, a screen remains visible until the user clicks on the button.

While Macromedia hasn't changed Director's basic approach to interactivity—you'll still find yourself fighting the program's innate desire to play your project from start to finish with no pauses—it has taken steps to make the program easier to work with. One improvement is a

REAL PRODUCTS REAL RATINGS Reviews you can trust: Unlike other publications, Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.
Outstanding ★★★★★ = 9.0–10.0 Very Good ★★★★ = 7.0–8.9 Good ★★★ = 5.0–6.9 Flawed ★★ = 3.0–4.9 Unacceptable ★ = 0–2.9

redesigned Score window, sans the headache-inducing hieroglyphics the previous versions displayed (see "Director Scores Big"). Director 6 also supports multiple Score windows, giving you numerous views into a project's timeline. You can set different zoom scales and display options for each window, and drag and drop elements (called *sprites*) from one window to another.

No other authoring program could touch Director 5's animation features, and Director 6 ups the ante. Where Director 5 allowed up to 48 sprites in each Score (and therefore on the Stage), Director 6 allows up to 120 sprites on the Stage simultaneously, and you can animate each one at up to 500 frames per second.

In the new Score window, working with sprites is much easier than in previous versions. Gone is the In Between command, Director 5's clumsy way of moving a sprite across the Stage; you can now animate a sprite by simply selecting the last frame in which it appears and dragging it to its final destination. You can also insert keyframes to create complex animation paths. And if you resize a sprite so it appears in more or fewer frames, Director 6 resizes the keyframes proportionally so the sprite travels faster or slower along the animation path.

Limited Behavior

To address users' criticisms of Director's script-dependent approach, Macromedia has added a Behavior Inspector. This new tool lets you create interactive buttons and hot spots without using Director's Lingo language. It works, but it doesn't go as far as similar features in competing products.

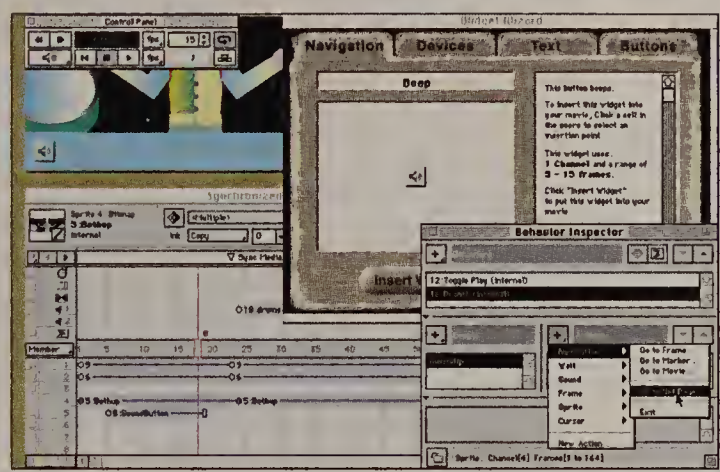
In the Behavior Inspector, you choose an object, an event (such as a mouse-click), and an action (such as playing a sound) from pop-up menus, and Director creates a Lingo script. Alas, the generated scripts aren't commented, so their value as learning aids is limited. What you can do with the Behavior Inspector is also limited. You can't use it, for example, to build a behavior that controls the playback of a QuickTime movie. For this and other advanced tasks, Director includes a library of canned behaviors—in the form of Lingo scripts—that you can drag and drop onto sprites or frames.

Along with the new Widget Wizard, which allows one-click access to common interface elements, these behaviors are solid steps forward, but they don't give Director the simplicity of mTropolis; Lingo still lurks just beneath the surface.

Speaking the Web's Lingo

Director's reliance on scripting makes for a steeper learning curve, but it's also what makes Director such a superb tool for high-octane interactivity. In version 6, Macromedia extends Lingo's vocabulary to allow greater control over media and stronger ties to the Internet.

One significant new feature is the ability to synchronize an animation with an audio track or QuickTime movie. In previous versions, synchronizing animation with audio was a hit-or-miss affair; it's rock solid in Director 6, thanks to tighter integration between Director and SoundEdit 16. You can use SoundEdit 16 to add bookmarklike labels to a sound file or QuickTime movie, then import the sound or movie and synchronize animation events with the labels.



Director Scores Big Director 6's new Behavior Inspector (bottom right) and Widget Wizard (top right) let you create interactive projects without scripting.

Many of the Lingo enhancements in version 6 add capabilities to Shockwave for Director, the technology that enables Director movies to play within Web browsers. Because Shockwave itself now supports streaming (which allows a Director movie to begin playing while it's still downloading), it's a far more viable option for Web developers who want to add CD-ROM–like features and animations. Director 6 also supports browser scripting: using JavaScript or Microsoft's VBScript, you can control Shockwave movies—for example, pause and resume playback or jump to a specific point.

Director 6 also makes it easier to create hybrid CD-ROM–and-Web projects. You can now import and establish links to graphics, text, and other elements stored on Web sites; when a CD-ROM containing Web links runs, it retrieves and displays those media elements. Director's enhanced Web features don't approach those of third-party plug-in modules—such as g/matter's XtraNet or Allegiant's Marionet for Director, both of which give programmers low-level access to Internet protocols—but they're more than adequate for creating simple hybrid CD-ROMs that retrieve and display information from Web sites.

Another way the Web has infiltrated Director 6 is in the program's unmatched built-in help system: it now features Web links that take you directly to relevant areas of Macromedia's Web site, where you can download examples, read new tips, and get late-breaking information.

Macworld's Buying Advice

Although an enhanced Score window and new behavior features make the program more approachable for beginners, Director remains more difficult to learn than mTropolis. And while you can create Windows run-time projects in mTropolis, Director requires that you buy the Windows version.

Nonetheless, Director 6 Multimedia Studio is a first-rate bundle of production power, and Director remains the premier tool for professional multimedia development. It offers more options for tuning performance, superior animation features, and stronger ties to the Web. No other authoring program provides a more powerful mix of features, productivity aids, and performance.—JIM HEID

Director 6 Multimedia Studio

DIRECTOR 6 ★★★★/7.8
MULTIMEDIA STUDIO ★★★★/8.2

PROS: Enhanced authoring environment; simplified Score; excellent Web features; bundle offers great value. **CONS:** Timeline approach and heavy reliance on scripting complicate authoring; must purchase Windows version to create Windows titles. **COMPANY:** Macromedia (415/252-2000, *www.macromedia.com*). **COMPANY'S ESTIMATED PRICE:** $999.

Virtual PC

SLOW-BUT-STEADY EMULATOR'S PRICE IS RIGHT

UNTIL RECENTLY, IF YOU WANTED to run Windows 95 on your Mac without installing a PC-compatibility card, you had exactly one choice—the almost intolerably slow SoftWindows 95 from Insignia Solutions (see *Reviews*, July 1997). If you wanted to run OS/2 or Windows NT on your Mac, hardware cards were your only option. Now, thanks to the hardware-emulation gurus at Connectix, there's a cheaper and more flexible route to Windows compatibility. The eagerly awaited Virtual PC 1.0 provides an emulation program that allows you to run PC software on your Mac—albeit slowly—by converting X86 instructions into PowerPC instructions on the fly.

Windows in a Window Virtual PC lets you fill your entire screen with Windows 95, or run the OS in a Macintosh window.

Because Virtual PC mimics an Intel Pentium PC with MMX capabilities, it supports any operating system that runs on the Intel Triton chip set—including Windows NT, OS/2, and OpenStep (Insignia Solutions' products, by comparison, are OS-specific). The program comes bundled with your choice of Windows 95, or Windows 3.1 and DOS. Like SoftWindows 95, Virtual PC allows you to access Mac peripherals from within PC applications.

Virtual PC's most appealing feature is its price: less than half that of SoftWindows 95 4.0. It's also easier to install and configure, but it has steeper system requirements: Connectix recommends a PowerPC 604 or 604e chip, or a 603e chip running at 180MHz or faster.

Even on fast hardware, though, Virtual PC's speed is disappointing. Although the program offers excellent compatibility with PC software, it's not noticeably faster than SoftWindows. In fact, in some of our speed tests on a Power Macintosh 7300/200, Virtual PC ran slower than SoftWindows 95 4.0 (see "Virtual PC's Speeds on Par with SoftWindows'"). Macworld Lab also spot-tested Virtual PC on a 601-based 7500/100 (which Connectix doesn't support) and found that it ran consistently slower than SoftWindows 95 on that machine.

Virtual PC is easier to set up and less cumbersome than SoftWindows 95. SoftWindows requires you to tinker with memory settings in the program's Preferences to optimize performance. With Virtual PC, you simply assign more memory to the program using Get Info, and Virtual PC takes care of optimizing the allocated memory for maximum performance. (Boosting RAM allocation from 22MB to 30MB produced a noticeable improvement in performance.)

Setting up shared folders between the Mac and PC environments is also more straightforward with Virtual PC. Accessing PC files from your Mac is particularly easy; when you double-click on a Virtual PC hard-drive icon—the virtual PC hard drive on your Mac—it actually mounts on the Mac desktop, just like any other disk.

Like SoftWindows 95, Virtual PC offers a quick-start feature that saves a snapshot of the current PC environment when you quit. You can run Virtual PC within a window on the Mac desktop or in full-screen mode. It's easy to swap between the two views; pressing the ⌘ key makes Virtual PC's menu bar appear whenever you need it. Unfortunately, Virtual PC doesn't allow you to copy and paste from PC programs to Mac applications—something SoftWindows does quite well. You can, however, copy and paste from Mac to Windows.

Macworld's Buying Advice

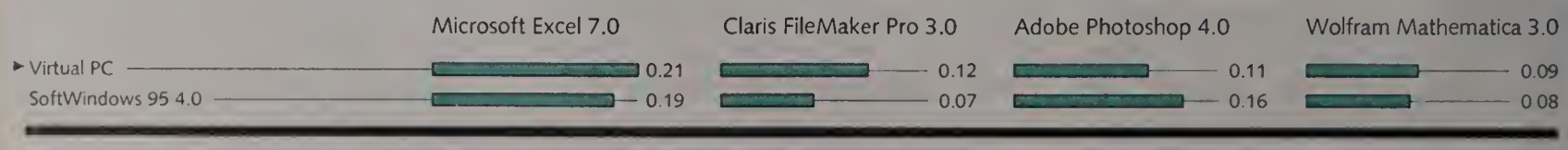
Anyone who's serious about running PC applications on a Mac—particularly games and multimedia titles—should bypass both Virtual PC and SoftWindows and spring for a PC-compatibility card from Apple or Orange Micro. For users who occasionally need to run PC programs without steep speed requirements, or for those who want to experiment with other operating systems, Virtual PC is a viable, low-cost solution—and a better deal than SoftWindows.—JOSEPH SCHORR

RATING: ★★★/6.8 **PROS:** Least expensive PC-on-Mac option; supports full range of Intel-based operating systems; easy installation and setup. **CONS:** Slow performance; can't copy from PC to Mac. **COMPANY:** Connectix (415/571-5100, *www.connectix.com*). **COMPANY'S ESTIMATED PRICE:** $149.

Macworld LAB TEST

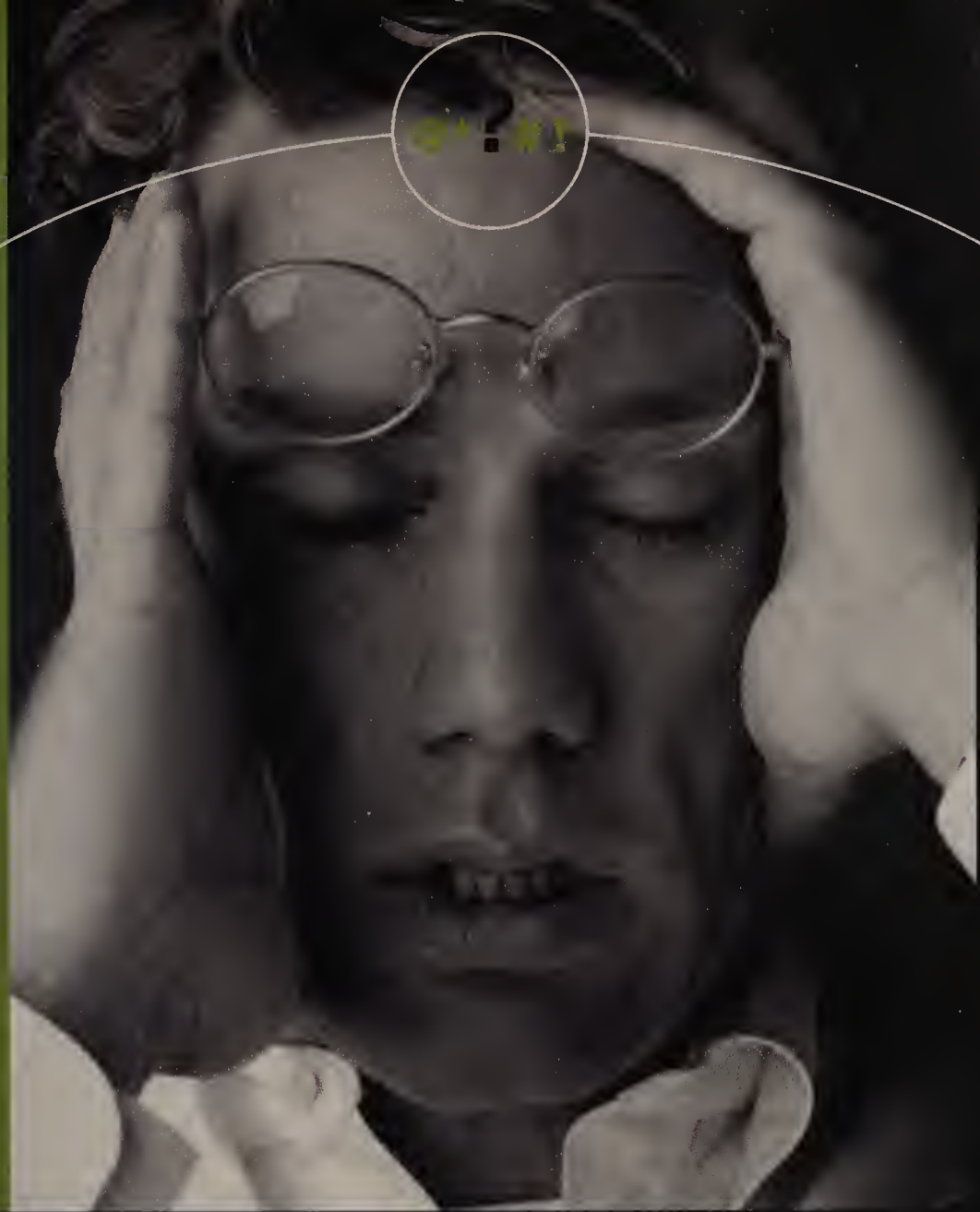
Virtual PC's Speeds on Par with SoftWindows'

Longer bars are better. Results are times as fast as a Sony PCV-120 200MHz Pentium MMX PC (Pentium 200 = 1.0). ▸ New product.



Behind Our Tests

For more information on our methodology, see "Windows 95 Compatibility Solutions," *Reviews*, July 1997, or *www.macworld.com/tests/*. Both products tested on a Power Macintosh 7300/200.—**Macworld Lab testing supervised by Matt Clark**



where can't you go today?

acintosh
mac/os

windows
microsoft office 97

Way to go Microsoft! Office 97 is packed with hot new features that make it number one. But those same features make Office 97 file formats completely unreadable by any Macintosh software. Period. So how do you go between your Mac and Word or Excel 97 files?

acLinkPlus will get you there.

st rely on new **MacLinkPlus 9.7** to take care of your Office 97 file conversion needs. Loaded with ndreds of translation possibilities, **MacLinkPlus** is the only choice for converting popular PC-based ord processing, graphics and spreadsheet files for use on your Mac. Or vice versa. With just a point nd click or a drag and drop. That's why Apple bundles **MacLinkPlus** with every Mac OS they sell. nd why you should find out about upgrading to version 9.7 today.

MacLink

DATAVIZ®

product names are trademarks of their respective holders.

Circle 79 on reader service card

MacLinkPlus 9.7 lets you read and write Office 97 files on your Mac. Upgrade today

For details, call 1.800.270.0030 ext. 131 or visit our web site at http://www.dataviz.com/YouCanGo

Get a cool deal on our hot Internet utility Web Buddy when you upgrade now.

StarMax 5000/300

CONSUMER SYSTEM TAKES 603E LEAD

MOTOROLA'S TANZANIA II motherboard makes an impressive debut in the StarMax 5000/300. This 300MHz 603e-based machine—sporting a 50MHz bus—ties the 604e-based Apple Power Macintosh 7300/200 in overall speed and rivals the StarMax 4000/200 in Macworld Lab tests. It even *outperforms* 604e systems in many tasks, taking a pronounced lead in 603e performance.

Featuring a new memory controller and breaking free of the 40MHz system-bus speed of the original Tanzania motherboard (used in previous StarMax models), the Tanzania II increases bus speed by 25 percent over its predecessor. The new bus architecture, combined with a faster CPU clock rate, proved enough to push the StarMax 5000/300 past its competitors, making it a great option for small-office/home-office users. The 5000 outruns the only other shipping 300MHz 603e-based system, Apple's Power Macintosh 6500/300 (which also uses a 50MHz bus), by 4 percent overall.

The StarMax tops Power Computing's PowerBase 240 (with a 40MHz system bus) by a whopping 36 percent. But because of its $1499 price (which includes a $100 rebate from Power Computing through the end of July), the PowerBase remains an incredibly strong value. As a result, the top-performing StarMax 5000/300 ties the value-oriented PowerBase 240 as *Macworld*'s Editors' Choice for best SOHO system (see *Mac Superguide* in this issue).

Still, if you need more features and speed than the PowerBase 240 offers, the StarMax 5000/300 provides both at a respectable value. For $2899, Motorola includes 4MB of on-board video RAM, compared with the 2MB of VRAM on both the Power Mac 6500 and PowerBase 240. (A $3399 model includes an 8MB IXMicro TwinTurbo 128 video card and 100BaseT Ethernet.)

Like its competitors, the StarMax includes on-board video and 3-D acceleration. The StarMax 5000/300 also includes an Iomega Zip drive, 10BaseT Ethernet, a 4GB hard drive (all standard on the Power Mac 6500), and a 16× CD-ROM drive (versus 12× models in the PowerBase 240 and Power Mac 6500).

The StarMax 5000 also offers four free PCI slots (a fifth is taken up by the Ethernet card) versus the three free slots the PowerBase 240 offers. That expandability, the Zip drive, and the system's video capabilities make the StarMax 5000 attractive to novice content creators and general-purpose business users. Motorola has also added internal SCSI, a feature users have been demanding. Priced $100 less than the Power Mac 6500, the StarMax 5000/300 offers more for the money—and although the PowerBase 240 is less expensive, the StarMax 5000 makes up for its price with its generous features.

One disadvantage: those upgrading from older systems won't be able to transfer RAM into their newly purchased StarMax 5000. The StarMax uses 3.3-volt DIMMs, which are incompatible with older memory modules.

Macworld's Buying Advice

Although we don't recommend it for professional graphic designers or multimedia producers, general business users and

ARNOLD TIOSEJO

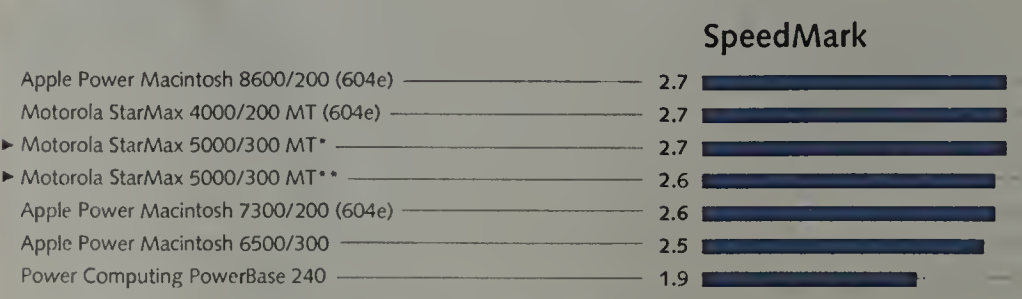
even entry-level content creators should consider the StarMax 5000/300; it matches the performance of several low-end 604e systems and leads all 603e models. The StarMax 5000/300 offers a rich set of features at a respectable price, and—thanks to the Tanzania II motherboard—top-notch performance.—TOVA FLIEGEL

RATING: ★★★/6.6 **PROS:** Great performance and features; solid value. **CONS:** 3.3-volt DIMMs. **COMPANY:** Motorola Computer Group (800/759-1107, *www.mot.com/computer/*). **LIST PRICE:** Base model $2899; with 8MB video card and 100BaseT Ethernet $3399.

Macworld LAB TEST

Fastest 603e-Based System Yet

Longer bars are better. ►New system. An Apple Power Macintosh 7100/80 has a SpeedMark score of 1.0.



	CPU	FPU	Disk	Video	Star Rating
Apple Power Macintosh 8600/200 (604e)	3.0	2.9	1.9	3.6	★★★/6.5
Motorola StarMax 4000/200 MT (604e)	3.0	2.9	1.9	3.0	★★★/5.3
► Motorola StarMax 5000/300 MT*	2.9	2.6	2.1	5.9	★★★/6.6
► Motorola StarMax 5000/300 MT**	2.8	2.5	2.1	4.0	★★★/6.6
Apple Power Macintosh 7300/200 (604e)	2.9	2.9	1.6	3.6	★★★/5.9
Apple Power Macintosh 6500/300	2.7	2.5	1.9	3.3	★★★/5.9
Power Computing PowerBase 240	2.1	1.9	1.6	2.4	★★★/6.5

*With 8MB IXMicro TwinTurbo 128 video card. **With 4MB of on-board VRAM.

Behind Our Tests

For detailed information on our systems benchmarks, see *Mac Superguide* in this issue or *www.macworld.com/tests/*.—Macworld Lab testing supervised by Mark Hurlow

GIMME FIVE
free
DynaMO 640
MO
640MB
FUJITSU
640

Buy a DynaMO 640 before Sept. 30, 1997, and receive a free 3.2 gigabyte 5-pack of media.

Just buy a DynaMO 640 drive before September 30, 1997, and we'll rush you a free 5-pack of DynaMO 640MB cartridges. That's a whopping 3.2 gigs of removable storage free. And it's media so durable, it comes with a lifetime warranty. Mail the original receipt and the original UPC symbol, along with your name and address to: Fujitsu Computer Products of America, Attn: Gimme Five Free, 2904 Orchard Parkway, San Jose, CA 95134-2009. To find out where DynaMO 640 drives are sold, call (800) 735-4510, or visit www.fcpa.com.

FUJITSU

Offer good in U.S. only. Purchases must be made and sales receipts must be dated between June 1, 1997 and September 30, 1997. Requests for offer must be received by October 30, 1997. Customers must send in: original UPC symbol from DynaMO 640 packaging and original sales receipt. Only original sales receipt accepted. Customers can request return of sales receipt by including a note and a stamped self-addressed envelope with their request. Void where prohibited or restricted by law. Limit one per customer. Proof of mailing does not constitute proof of delivery. Fujitsu is not responsible for lost, late, illegible or incomplete orders or postage-due, damaged or separated mail. Not eligible: Fujitsu Computer Products employees, agencies, distributors or resellers. Fradulent submission of requests could result in federal prosecution under mail fraud statutes. Not valid with any other offer. Allow 6-8 weeks for delivery. Offer expires September 30, 1997. Offer good only on DynaMO 640. Fujitsu Computer Products of America, Inc. reserves the right to cancel this offer at any time. ©1997 Fujitsu. All rights reserved.

IS THIS JAZ OR THE *hustle?*

FREE 5-PACK

Visit our website for all the details on our free 3.2 gigabyte 5-pack media offer.

Once you get past the cute name and trendy packaging, the only thing Jaz® users have left is a thinner wallet. Good thing there's DynaMO®640 removable storage from Fujitsu. DynaMO 640 is much more durable because it's magneto-optical (unlike Jaz). It lets you save your work on different media capacities ranging from 128MB to 640MB (unlike Jaz). You get free tech support (unlike Jaz). And it's less than half the cost of Jaz media,* with a 640MB cartridge going for only $25. There's also our No Excuses℠ policy: Our promise that in the unlikely event should anything go wrong within warranty period, you'll get a replacement drive in two business days. (Bye-bye Jaz.) For more details, without the hustle, call, or visit our website.

FUJITSU

(800) 735-4510 www.fcpa.com

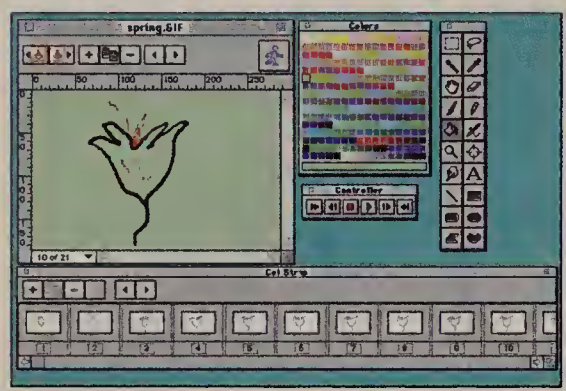
©1997 Fujitsu Computer Products of America. DynaMO is a registered trademark and No Excuses is a service mark of Fujitsu Computer Products of America, Inc. All rights reserved. Jaz is a registered trademark of Iomega Corp. * PC Magazine Online 6/12/97.

Circle 202 on reader service card

Web Animation Tools

VERSATILE PROGRAMS PAVE THE WAY FOR INTERACTIVITY

UNTIL RECENTLY, WEB ANIMATION meant nightmarish download times and novelty pages reminiscent of Times Square on New Year's Eve. No more; several programs released over the past year prove it's possible to develop 2-D animations that load quickly and add useful interactivity to a site. I checked out four of these new tools, ranging from $50 to nearly $450, from the simple to the sophisticated. The result: you get what you pay for.



The Organic Approach WebPainter's simple interface requires creating or importing individual cells.

Animation Controls

One of the first and most popular 2-D Web animation tools for the Mac, Totally Hip Software's WebPainter 1.0 creates cel-based animations—in other words, it produces individual cels that, shown in succession, create an animated effect. The others are frame-based; you create keyframes in which you draw or import only the parts of your animation that change, and the program generates the transitional frames using motion interpolation.

WebPainter's simple interface consists of a document window, where you create new cels and import and create bitmapped graphics; a strip displaying each cel in sequence; and color and tool palettes. Unfortunately, you need to create (or import) each cel of your animation without the help of keyboard commands for manipulating cels or even playing your animation.

In contrast, DeltaPoint WebAnimator 1.1's interface feels too complex. You create your animation in three separate views: Draw, where you draw and edit objects; Animation, where you resize and reposition elements of your animation's frames; and Storyboard, which displays a cel-type overview of each frame. Switching back and forth between the views quickly becomes annoying.

Graphic timelines and object layers give Macromedia's Flash 2.0 and PaceWorks' ObjectDancer 1.1 more flexibility than the other programs have. In both, individual objects appear on layers beside the timeline. Flash's animation controls appear in pull-down menus attached to keyframe markers on the timeline; ObjectDancer's dynamic controls let you click in the timeline or use keyboard shortcuts to build your animation.

Moving Pictures

When it comes to generating motion, Flash and ObjectDancer are the most intuitive of the three frame-based programs: you either draw a motion path or drag an object to designate motion between keyframes. WebAnimator interpolates selectively; to resize an object over successive frames, you draw the individual frames, selecting menu commands only for certain types of interpolation.

In ObjectDancer, recycling motion and other attributes of an object is a snap. You simply copy an object's attributes and paste them onto other layered objects in your timeline, or store them in a library for future use. Similarly, Flash can generate grouped animations that are either reused in the same animation (ensuring smaller file sizes) or stored in libraries.

Timing Is Key

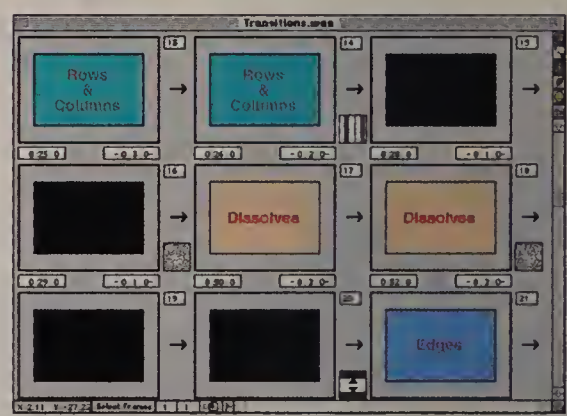
Creating a fast-loading but good-looking animation is a balancing act that requires careful attention to timing controls. Two factors are the interframe delay, which essentially determines the objects' velocity, and the frame rate. The more frames in your animation, the smoother it appears—and the bigger the resulting file.

This is where cel animation's weaknesses are most obvious: to smooth out changes in an object's velocity in WebPainter, you have to create extra cels. WebAnimator gives you more control, letting you adjust the interframe delay in individual frames in the Storyboard view. ObjectDancer gives you excellent control over the velocity of individual objects as they move through the timeline; you double-click on an object's attribute in its timeline layer, then reshape Bézier points on a velocity curve. To alter objects' velocity in Flash you use an *easing* control in interpolated sequences.

Technicolor Web

Despite some shortcomings, Flash's drawing and painting tools offer more flexibility than do the others (ObjectDancer lacks such tools entirely). A standard paint bucket can fill objects with broken or closed lines; set the pencil tool to recognize shapes, and those lopsided papayas become perfect circles. Even the options for flipping, rotating, and scaling are far more comprehensive than those in WebAnimator and WebPainter.

Flash's vector-based approach produces smaller files than bitmapped draw programs can manage, but limited tolerance settings make drawing with pinpoint accuracy difficult. Drawn objects are often broken into segments, making them difficult to move around quickly. And although you can import, scale, and trace bitmapped graphics, the trace feature frequently creates complex paths; it's best used for simple objects, such as logos.



Storyboarding This WebAnimator view displays a sound timeline and transitions between keyframes.

WebPainter draws and imports only bitmapped files, making for potentially large file sizes and jaggy animations. While you can draw and import vector-based graphics in WebAnimator, its drawing tools are limited, and imported bitmaps consistently changed position when I toggled between views.

ObjectDancer offers no drawing tools, imports bitmapped formats exclusively, and relies heavily on well-implemented but transitional QuickDraw GX technology. Flash's vector-drawing

Festival of Animation: Four Web Animators Compared

	Flash 2.0	ObjectDancer 1.1	WebAnimator 1.1	WebPainter 1.0
Company	Macromedia	PaceWorks	DeltaPoint	Totally Hip Software
Star Rating	★★★★/8.2	★★★★/7.4	★★★/6.0	★★★/6.9
Price	$199.00	$445.00	$49.95	$99.95
Phone	415/252-2000	415/261-6180	408/648-4000	604/685-6525
Web address	*www.macromedia.com*	*www.paceworks.com*	*www.deltapoint.com*	*www.totallyhip.com*
Import formats	AutoCAD DXF, BMP, EMF, GIF, Illustrator, JPEG, PICT, Shockwave Flash, SPL, SWF, WMF	GIF, JPEG, MacPaint, Photoshop, PICT, QuickDraw GX (graphics or text), QuickTime (sprite, video, text), SGI.RGB	BMP, DIB, EPS, GIF, JPEG, PCD, PCX, PDF, PICS, PICT, PNG, TGA, TIFF, WebAnimator Object	GIF, PICS, PICT, QuickTime
Export formats	animated GIF, AVI, BMP sequence, DXF sequence, EMF, EPS 3.0, GIF, Illustrator sequence, JPEG, PICT, QuickTime, SPL, SWF, WMF	GIF, GIF89, GX, Java, PICT, QuickDraw GX, QuickTime, QuickTime sprite	animated GIF, QuickTime (512 × 384 only), WebAnimator	animated GIF, GIF frames, PICS, PICT frames, QuickTime, QuickTime sprite, Sizzler
Drawing tools	vector	none	vector	bitmap
Sound formats	AIFF, WAV	AIFC, AIFF, AU, DigiDesign Sound Designer II, MIDI/CD imports, QuickTime soundtracks, WAV	AIFF, SND, WAV; supports 4 soundtracks	none
Plug-in	Shockwave Flash (.SWF)	none	WebAnimator (.WAN)	Sizzler (.Sprite)
Animated GIFs	Exports 4, 8, 16, 32, 64, 128, and 256 colors, black and white, and adaptive palettes; no support for transparency.	Exports GIFs with built-in palettes, including System, Netscape, optimized, 4 colors, 16 colors, options for custom; supports transparency.	Exports animated GIFs; stores bitmapped images in 8-bit format; default color palette is Mac system palette.	Defaults to adaptive palette; supports background transparency.
QuickTime/ video compression	animation, Cinepak, Component Video (YUV), graphics, Microsoft RLE, Microsoft Video 1, Motion JPEG A/B, Photo JPEG, Planar RGB, video	animation, Cinepak, Component Video (YUV), graphics, Photo JPEG, video	animation	animation, Cinepak, Component Video (YUV), graphics, Photo JPEG, video

approach also allows good typographical control, letting you skew, flip, rotate, and otherwise manipulate text. WebPainter and WebAnimator are more limited; they don't skew or rotate text easily, and because WebAnimator's plug-in format uses client-side fonts, you need to make sure you're using a common typeface.

Web developers who don't have the patience to work in Java or Macromedia Director should have a field day with the interactivity built into Flash and WebAnimator. Animated and rollover buttons are particularly easy to create in Flash, using a simple timeline with four keyframes and a wide range of button actions. WebAnimator also lets you navigate between scenes, or link multiple scenes and play them locally, but it doesn't support branching between scenes over the Web.

Curtain Up

If you've added sound to your animation, users will need a browser plug-in to hear it (unless you export your animation as a QuickTime movie). They'll also need plug-ins to display interactive elements created in Flash or WebAnimator. Sound and animation (at 10 or 15 frames per second) in plug-in formats played very well over the Web using a 28.8-Kbps connection and a 100MHz CPU. Faster rates can mean skipped frames if the sound streams faster than the images.

Sound production was particularly good in ObjectDancer, which supports unlimited soundtracks per scene and has a nice audio-marking window for scrubbing and synchronization. Though ObjectDancer exports applets, it can include audio only in QuickTime and video exports.

The compression that the plug-in formats offer is a definite advantage, except in the case of animations saved in WebPainter's Sprite format. In Flash, a giant 600K GIF with more than 100 colors became a 7K streaming Shockwave Flash movie; WebAnimator pared the same GIF from 524K down to 46K. While WebPainter's cel-based animated GIF was the smallest of all—162K—its streaming Sprite weighed in at 255K.

ObjectDancer has no plug-in format; a 94-color GIF test image clocked in at 545K, unreasonably large for general Web viewing. But with its built-in GIF palettes, great typography, and motion controls, ObjectDancer lets you achieve wonderful effects with smaller GIFs. You have to jump through a few hoops to make sure animations saved in the WebAnimator and Shockwave Flash plug-in formats display correctly, and in Flash, a variety of useful but often tricky parameters—like HTML tag attributes for playing movies at high or low quality—can drastically affect the appearance of your movie.

Macworld's Buying Advice

All the animation programs I looked at are good enough to generate simple animations; your choice depends on how much sophistication and interactivity you're after. WebPainter is an adequate tool for very simple, no-frills animations and sprites. WebAnimator is reasonably priced considering its comprehensive features and interactivity, but limited drawing tools and motion controls make it best suited for animations like banner ads and simple logos. The high-priced ObjectDancer cries out for more interactivity, though its sophisticated object-oriented timeline and animation controls make it worth a serious look from new-media professionals. But for an all-purpose animation tool with a simple interface and interactive components, look no further than Flash. It's all you need to give your site a dynamic future.—ROXANNE GENTILE

Color Page Scanners

CONVENIENT, INEXPENSIVE NEWCOMERS ARE A WEB PUBLISHER'S DREAM

MITSUBISHI PIONEERED THE color sheetfed scanner with its MCA S600c (*Reviews*, June 1997), and now two more vendors have stepped up to the plate. Microtek's Color PageWiz and Visioneer's PaperPort Strobe carry on the tradition of archival scanners, delivering speedy scans at quality levels useful to online producers and low-end publishing. Both products deliver medium-quality 24-bit color scanning, but neither scans at resolutions needed for color print publishing.

A Study in Contrasts

The slower, bulky PageWiz—priced at an amazingly low $159—is roughly the size of a compact ink-jet printer; its built-in sheet feeder makes page alignment easy. By comparison, the more-expensive Strobe is small and sleek—taking up even less space than its predecessor, the PaperPort Vx (*Reviews*, March 1996). The Strobe lacks a sheet guide, but you can easily stow it behind your keyboard so it's always at hand for quick, convenient scans. Both scanners connect to your Mac via a supplied SCSI cable, but the PageWiz makes you daisy-chain additional devices onto the back of the scanner itself; the Strobe's piggyback connector lets it jump into the chain right at your Mac's SCSI connector.

Setting up either product is easy; both offer plenty of online documentation and quick-start guides that get you up and running quickly. The Strobe requires careful calibration with a special sheet. Pay attention to Visioneer's instructions—scanning the calibration sheet incorrectly can mess up your colors beyond recognition.

Both units automatically begin scanning when you insert a page; the Strobe immediately scans and stores the image, while the PageWiz first asks you to confirm scan settings—inconvenient when you're scanning multiple pages. The PageWiz's bright scan light remains on continuously, which I found annoying in a dimly lit office.

Speedy Scans, So-So Saturation

For basic document scans—100-dpi monochrome—the Strobe performs twice as fast as the PageWiz: 4 seconds compared with 8 seconds, for a single sheet. The speed difference narrows at higher resolutions or in color mode, but the Strobe always maintains a performance edge. The PageWiz offers 300-by-600-dpi optical resolution, while the Strobe's limit is 300 by 300; the difference shows up in high-resolution color scans, where

KEVIN CANDLAND

Color PageWiz, top, and PaperPort Strobe

the PageWiz captures more detail. Strobe images also tended to be washed out, requiring post-scan correction; Visioneer says a corrective patch will be available online by the time you read this.

You can easily change either scanner's parameters on the fly; both products include preset configurations for common situations—such as OCR or photo storage—and both let you create your own presets. The PageWiz, however, remembers only your last four settings, while the Strobe stores any number. Both scanners include document management software with an icon-oriented desktop that lets you drag and drop documents to arrange, stack, OCR, print, fax, file, and e-mail them. The Strobe's PaperPort software is more convenient and sophisticated than the PageWiz's PageSuite application.

Plays Well with Others

PaperPort lets you scan directly into an application (such as an image editor), use the OCR engine to dump text to a word processor, or send your image directly to Internet e-mail (PageSuite, in contrast, supports only Lotus cc:Mail); a one-step hot key makes faxing very convenient. You can also search PaperPort archives using annotations inside a document, as well as external keywords; PageSuite limits searches to keywords only.

Xerox TextBridge serves as the OCR engine for both scanners, although the Strobe only includes TextBridge LE, while the PageWiz bundles the full 3.0 application. Either TextBridge version does a fair job of capturing document formatting—including tabs, indentations, and fonts—but if you want the Strobe to yield highly accurate OCR, you'll have to take advantage of Visioneer's $159 optional upgrade to TextBridge Pro, which surpasses even TextBridge 3.0's features. The PageWiz also bundles MicroFrontier's ColorIt 3.0.8; the Strobe includes PictureWorks' PhotoEnhancer 3.1 and Connectix QuickCards 1.0.

Macworld's Buying Advice

If you need top-quality color scans, buy a low-cost flatbed scanner—neither the Microtek Color PageWiz nor the Visioneer PaperPort Strobe can touch their resolution or color accuracy. Otherwise, let your budget be your guide: if money is tight, the PageWiz offers color imaging and advanced OCR capabilities for a super-low price. If time savings are more important than cost, you'll prefer the Strobe's fast scanning, behind-the-keyboard positioning, and exceptional document-management software.—MEL BECKMAN

Color PageWiz

RATING: ★★★★/7.2 **PROS:** Good value. **CONS:** Bulky; no direct-to-application scanning; limited one-step e-mail; slow scanning speed. **COMPANY:** Microtek (310/297-5000, *www.microtekusa.com*). **LIST PRICE:** $159.

PaperPort Strobe

RATING: ★★★★/7.9 **PROS:** Compact, fast; one-step fax hot key; scans direct to applications and e-mail. **CONS:** Slightly washed-out colors; limited OCR configuration options; lower resolution. **COMPANY:** Visioneer (510/608-0300, *www.visioneer.com*). **LIST PRICE:** $299

Painter 5

UPGRADE TOUCHES UP INTERFACE AND ARCHITECTURE

PAINTER 4, WITH ITS EXCELLENT emulation of natural-media techniques and innovative digital brushes, is a tough act to follow (see *Reviews*, March 1996). But MetaCreations—the result of the Fractal Design and MetaTools merger—has done it: Painter 5 is better than ever. The new version introduces an extended plug-in architecture, dynamic floaters (layers), more than 100 new brushes, selection and masking tools that conform to industry standards, and a more versatile interface. It also includes the Kodak Color Management System and supports both CMYK and Hexachrome output.

But despite all the changes, Painter is still Painter. Veteran users will find themselves on familiar ground, and novices still face a significant learning curve on the road to proficiency. But nothing worth attaining is easy, and Painter 5 is definitely worth the effort.

Torn between Two Brushes

When Painter 3 did away with the ability to tear off individual brush variants, I mourned. Painter 5 not only restores this feature but improves it: the new version lets you collect both tools and menu commands into user-definable palettes. That means you can keep your favorite pencils, airbrushes, and erasers close at hand, just as you would on a real drawing table—a terrific improvement that addresses how artists really work.

Among Painter 5's new brushes are one that paints in the style of John Singer Sargent; brushes that let you twist and pull colors across an image and paint on transparent layers, similar to working on glass or acetate; Super F/X brushes that apply glows and flames; and Super-Cloning brushes that transform an image as you clone it. New Photo brushes let you paint with individual color components (such as hue and saturation) and brush on imaging-filter effects (such as Blur, Sharpen, Dodge, and Burn). Unlike filters that work on entire images or selections, these brushes let you apply the effect only where you want it. If you've spent any time in a darkroom, you know this is a better way to manipulate a photo.

Painter still supports standard Adobe Photoshop 3.0 plug-ins (Photoshop 4.0 alters the conventions, making some new plug-ins—such as Alien Skin's Eye Candy—incompatible with Painter), but it extends the architecture so developers are no longer limited to Photoshop's capabilities. For example, Painter 5's new Dynamic Plug-in Floaters produce user-definable and -modifiable effects on a floating selection or on the image area beneath the selection. One dynamic floater applies glass distortions, blurring image elements directly underneath—when you move the floater, the distortion moves with it. If you save the image in Painter's native RIFF format, you can return to change the floater's location and blurring parameters. Other dynamic floaters burn and tear selection edges, adjust the image (with Brightness/Contrast, Equalize, and Posterize options), paint with liquid-metallic blobs, and bevel edges—a great way to create Web-page and multimedia buttons.

Transforming the Clones Painter 5's Super-Cloning brushes can rotate, scale, shear, and otherwise transform an image. Here, the brushed-on clone is slightly rotated and mirrors the source image.

New Selection Tools

Painter's powerful but offbeat selection tools have long confused users and irritated professionals who regularly switch among programs during projects. New with version 5 are selection tools (marquee and lasso) that adhere to Mac conventions. Adding to a selection now takes a simple shift-click; earlier versions' misguided Controls Palette buttons are gone. Painter can still transform a pen-drawn Shape object into a selection definition, letting you select odd-shaped areas and edit selection boundaries more precisely. The long-overdue selection-tool changes make Painter more accessible to novices and more useful for everyone.

Painter 5's handling of masks (alpha channels) now better conforms to Photoshop practice. It can save as many as 32 user-defined masks with each document; when you import images into Photoshop, saved masks correspond to channels #4 and higher (up to Photoshop's 24-channel limit), and the channels of imported Photoshop images appear in Painter's Mask List palette. Similarly, Painter's image floaters correspond to Photoshop layers and Painter's Shapes to Photoshop paths. Altogether, it's easier than ever to use the two programs collaboratively.

Painter's greatest flaw is still its complexity. The manual is thorough and well organized, but it's hefty enough to frighten the faint of heart. Less daunting is the tutorial, which provides an excellent introduction to the program. The Painter CD contains lots of examples to help you plumb Painter's depths—predefined floaters, scripts, lighting designs, selection definitions, and interface sets—along with additional brushes, Image Hose nozzles, paper textures, weaves, patterns, color gradations, and color palettes.

Macworld's Buying Advice

Painter 5 is complicated and demanding to learn; then again, so are traditional art techniques. As with color on canvas, novices can start painting right away, learning the program's nuances as they gain experience. The payoff for persistence is mastery of an outstanding graphics tool. Painter 5 is a program no artist should be without.—CARLOS DOMINGO MARTINEZ

RATING: ★★★★★/9.1 **PROS:** Great new plug-in tools and dynamic floaters; excellent, customizable interface; amazing natural-media emulation. **CONS:** A learning curve befitting a complex program. **COMPANY:** MetaCreations (408/430-4100, *www.metacreations.com*). **LIST PRICE:** $449.

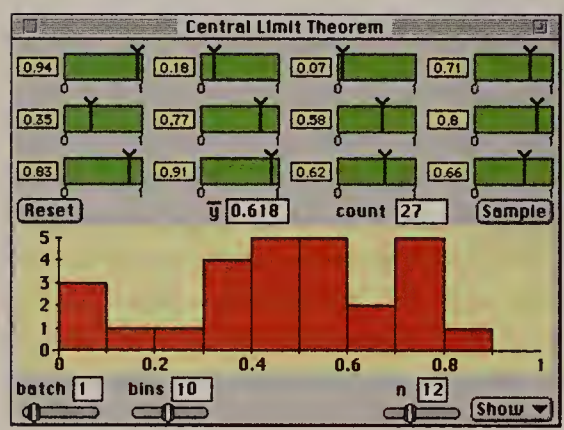
Statistics Packages

NEW ARRIVALS BOLSTER MAC'S SCIENTIFIC STANDING

FOR A REAL-WORLD DEMONstration of the Mac's aptitude for turning numbers into decisions, look no further than these new statistics packages: ActivStats 1.0, part of Addison-Wesley's interactive CD-ROM series; FloStat 2.0 from the survey experts at Senecio; and Prism 2.0, a Mac version of GraphPad's popular Windows lab-statistics program. Geared to users in three different segments of statistics, each product covers its chosen area well.

A Well-Rounded Package

The ActivStats package combines three components: a student version of Data Description's longtime stats favorite Data Desk (see *Reviews*, March 1996), educational movie clips, and an effective set of student activities that use Data Desk as a computation engine (see "Plenty Active").



Plenty Active ActivStats offers a score of interactive experiments to clarify basic principles—such as why bell curves pop up in many contexts.

An indexed online book uses material from Paul Velleman's introductory text, *Learning Statistics with Data Desk*, encompassing basic probability, distributions, hypothesis testing, analysis of variance, correlation, and regression. Besides providing enhanced first-year college statistics, ActivStats can automatically connect to Web sites offering additional material, links to statistics references, and intermediate-version updates.

All too often, an educational CD-ROM's multimedia material is a goofy sideshow aimed at keeping reluctant students glued to the screen. ActivStats, in contrast, makes every special effect count, illustrating specific technical points. The far simpler (but still effective) Mystat book-disk package from Duxbury Press (800/347-7707, *www.cyberbound.com/duxbury/*) covers many of the same topics and runs on the aging hardware found in many college computer labs; ActivStats, though, offers a first look at statistics for the twenty-first century.

Education and More

Senecio Software's FloStat is well-suited to education in the social sciences and business, but it serves professional users, too. As a specialty package for collecting and analyzing interview and survey information, FloStat provides a standard spreadsheetlike data-entry grid, buttons for common social-stats functions (t-tests, graphing, regression), and a large database of survey data. The set of statistical tests in FloStat is nothing like the 50-item list available in mainstream packages such as Abacus Concepts' StatView 4.5 (see *Reviews*, February 1996), but it supports nonparametric stats and cross-tabs, as well as special provisions for survey-specific issues (such as multiple answers to multiple-choice questions).

Two other FloStat features are designed to aid beginners: its narrow focus helps novices understand the basics without overwhelming them with irrelevant topics, and its tutorial serves as a respectable stand-alone statistics course for FloStat's range of application. Basic time-series functions and fancier table formatting would strengthen the program, but there's no complaining about its basic competence.

Bull's-eye for Labs

Similarly, Prism aims at one topic and hits the target dead center. It focuses on "wet" sciences (chemistry, biochemistry, molecular biology, and clinical lab work) and provides an automated lab notebook that's right for users all the way from college labs to professional publishing sites. Alas, Prism is priced a bit steeply for students, who should check out GraphPad's older product, InStat, as an alternative.

Before debuting as a commercial Windows product, Prism started life as custom software in the labs of Harvey Motulsky at Columbia University. As a result, its feature set corresponds exactly to the demands of practical data analysis. It includes detailed graphing tools and tweaks for making charts fit the particular specifications of scientific journals, as well as plenty of online selection aids to help you choose the right type of test for your data—a key consideration for scientists who are more likely to have a rack of pipettes than a statistics text on their lab bench. The manual (based on Motulsky's friendly introductory book, *Intuitive Biostatistics*) and tutorial provide excellent aids for the practicing scientist.

Prism's Windows origins show in a few details: it's slower on large data sets than Mac-native speed demons like Data Desk, and it exhibits occasional odd glitches. Still, the program behaves like a Mac application in most instances.

Macworld's Buying Advice

There's no clear winner among this threesome; each product provides capabilities that the others lack, and as a group they cover a wide variety of users and needs. ActivStats offers a great all-around package for everyone, including folks who are merely curious about statistics. FloStat is the program of choice for surveys and related efforts, while Prism is ideal for those who share their lab space with petri dishes or glassware.—CHARLES SEITER

ActivStats 1.0

RATING: ★★★★/7.6 **PROS:** Complete basic package; brilliant use of interactivity. **CONS:** Best on newer Macs. **COMPANY:** Addison-Wesley Benjamin/Cummings (800/822-6339, *www.awl.com/bc*). **LIST PRICE:** $29.95.

FloStat 2.0

RATING: ★★★/6.8 **PROS:** Fast; ideal for social sciences. **CONS:** Narrow focus. **COMPANY:** Senecio Software (419/352-4371, *www.senecio.com*). **LIST PRICE:** $149; student version $49.

Prism 2.0

RATING: ★★★★/7.1 **PROS:** Lab templates cover most real-world uses. **CONS:** Glitches from Windows port. **COMPANY:** GraphPad Software (619/457-3909, *www.graphpad.com*). **LIST PRICE:** $495.

50,000 IMAGES

The Image Collection
Order Royalty Free CD-ROMS
Search and Purchase
Order photodisc.com/selects/1

Resolution:
Low
High

New photodisc.com/selects™/1 book: highlights from our online image collection, $19.95. To order, or for a free catalog, go online or call 1 800 528 3472.

Download Image

Download any image. Anytime. www.photodisc.com

PHOTODISC™

Buy smart with Editors' Choice.

Macworld EDITORS' CHOICE ★★★★★

To buy smart when choosing Macintosh hardware or software, you need an expert's opinion. Fortunately, the experts at Macworld are more than willing to give you theirs. Just leaf through the pages of this issue — or any issue of Macworld. Wherever you see Editors' Choice, you can be sure the product has passed the most rigorous tests for performance and quality in its class. And comes out a winner.

Our reviewers scrutinize just about every Mac product that hits the market. If it wins us over, you can't go wrong.

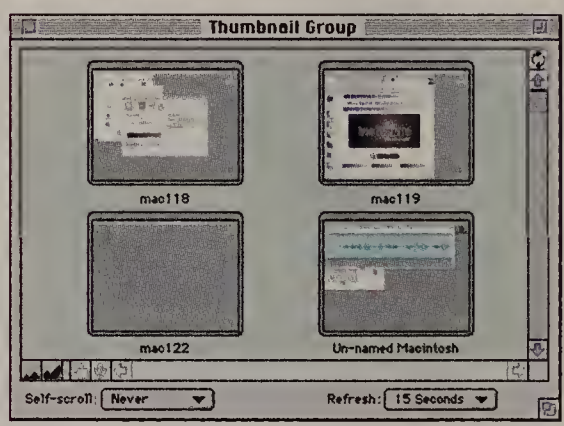
Macworld
THE ESSENTIAL MACINTOSH® RESOURCE

Screen To Screen

FLAWED SCREEN-SHARING UTILITY

IMAGINE COMPETING FOR KIDS' attention when they're within arm's reach of their e-mail box, the World Wide Web, and a white-knuckle game or two, and you'll understand why teachers have long wished for a way to synchronize students' screens with their own, and view students' screens while they're working independently.

Until recently, the only solution involved complicated hardware networks; the Apple Network Administrator Toolkit software's screen control is too complex for educators who don't need its other features (see *Reviews*, December 1996). Screen To Screen promises a simpler, more focused program. Unfortunately, the programmers at Power On Software didn't quite finish their homework; Screen To Screen 1.02 is buggy enough that it couldn't work reliably in classroom testing.



Screening Student Work Screen To Screen lets instructors view thumbnails of student machines.

Screen To Screen's setup and installation are quirky but relatively straightforward. The installer places the client extension on any or all machines on the network; the instructor's machine requires the Screen To Screen application as well. This application allows you to change the administrative password—a good idea since the default is easy to guess—and its Connections menu lets you observe, control, or broadcast to networked systems from the administrative Mac. The current version works on any AppleTalk LAN or WAN; future versions may support TCP/IP and IPX networks.

In our real-world tests, Connections dialog boxes and windows didn't always redraw properly when resized, occasionally had phantom borders and scroll bars, and sometimes failed to display all the zones on our network. With a little perseverance we were able to establish connections to the client machines.

Once the instructor's machine is connected to clients, you can monitor activity on all machines in a zone, and have the option of viewing several small thumbnail screens at once in a scrolling window (see "Screening Student Work"). The thumbnail images refresh at fixed, administrator-defined intervals. If you double-click on a thumbnail, it enlarges to fill the screen, allowing you to temporarily control the remote machine.

Screen monitoring and control worked reliably in our tests, but we can't say the same for screen sharing. When we tried to broadcast presentations from our instructor's machine to 20 classroom Macs, student screens froze after a few minutes, forcing us to restart the clients. We experienced these problems with both large and small test networks, and with a variety of applications.

Screen To Screen is also supposed to let you broadcast audio messages over the network and establish two-way audio communication with students, but we couldn't get it to work in our tests.

Macworld's Buying Advice

We can't recommend this version of Screen To Screen; it feels like beta software. Power On promises a more robust version soon. If you have your heart set on Screen To Screen, we recommend that you download it from the company's Web site and test it on your network.

For now, the Apple Network Administrator's Toolkit is a better choice for broadcasting presentations over a network; for remote screen control and collaboration, we still prefer Farallon's Timbuktu Pro 3.0 (see *Reviews*, January 1997). Unfortunately, both of these programs are overkill for most educators' classroom needs—there's room for a simple, reliable instructional lab program like Screen To Screen . . . once the bugs are worked out.—GEORGE BEEKMAN AND TODD SHECHTER

RATING: ★/2.2 **PROS:** Fills a niche for educators; straightforward interface. **CONS:** Extremely buggy; limited to AppleTalk networks. **COMPANY:** Power On Software (330/735-3116, *www.poweronsw.com*). **LIST PRICE:** Two-machine license $149.95 (educational and volume discounts available).

Come See Us at MacWorld in Booth 5012 and at Print '97 in Booth 223

Maybe it's time you broke out of that 11x17 world.

Creatively speaking, nobody likes to work in a box. But if you're still using conventional desktop printers, that's precisely what you're doing.

Croma24™ from ENCAD® can take your ideas much further. It's a versatile inkjet printer capable of producing photo-realistic images in vivid color at widths of up to 24 inches, and lengths of up to 15 feet. A fact that should have you salivating at the possibilities.

Because now, design firms can easily whip out packaging prototypes. Ad agencies can produce full-size storyboards without tiling. And corporate types everywhere can make the big presentation exactly that.

ENCAD Croma24 is easy to operate. It's Mac and PC compatible. And it'll help save time and money by minimizing your reliance on outside service bureaus.

And, ENCAD Croma24 starts at around $2000. So you can unleash your creativity without trampling the folks in Accounting. For more product information, visit our web site at *www.encad.com*. Or call 1-800-45 ENCAD for your nearest Authorized Reseller. Then watch your imagination truly soar.

ENCAD

Circle 65 on reader service card

© 1997 ENCAD and Croma24 are trademarks of ENCAD, Inc.

Buy smart with Star Ratings.

Macworld

★★★★★

Macworld Star Ratings evaluate overall product quality in a quick, easy-to-read format, assigning each product not just a Star Rating, but also a Star Score between 0.0 and 10.0. So even if two products receive the same number of stars, you can compare quality down to the decimal point.

Macworld Star Ratings are the most precise, the most accurate, the most reliable product evaluations out there. And you won't find them anywhere but in Macworld.

Macworld
THE ESSENTIAL MACINTOSH® RESOURCE

NetObjects Fusion 2.0

STILL THE BEST WEB AUTHORING TOOL FOR DESIGNERS

TRAILING THE PREMIER VERsion by mere months (see *Reviews*, May 1997), NetObjects Fusion 2.0 polishes the program and makes it even easier to create slick-looking Web sites. Users of version 1.0 will want to take advantage of this free upgrade, which keeps the program competitive in the face of such excellent new contenders as GoLive CyberStudio (see *Reviews*, July 1997).

Of the many major and minor improvements, one of the most welcome is that you can now drag and drop text (up to 32K), RTF files, images, sound, video, Macromedia Shockwave files, and Java applets from the Finder to the Fusion layout. You can also drag links from most browsers into Fusion. Layout improvements include guides, better tables and alignment options, support for anchors and horizontal rules, and new spelling-checker and search-and-replace tools.

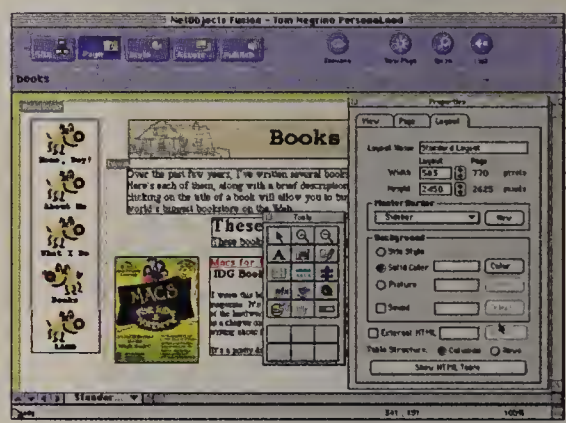
Also new to Fusion are Master Borders: you can place any text or graphics that you want to appear throughout your site in the four borders surrounding your page layout. You can name a Master Border set and apply it to individual pages, and use several sets within the same site. Changing a Master Border automatically updates all the pages that use it.

Version 2.0 also includes a new batch of predesigned SiteStyles, which let you change the look of your site with just one click. SiteStyles work with Master Borders, so you can now use vertical banners and navigation bars that update automatically as you build your site (see "Dogs on the Side").

The new version addresses several complaints about Fusion 1.0, including the gripe that it generated complex HTML tables that displayed slowly in browsers—Fusion 2.0 creates nested tables that are much simpler and quicker to load. Another was that Fusion's approach made collaboration among designers and programmers difficult. It's still not as transparent as in CyberStudio, but you can now include pages created with other HTML editors in your Fusion site.

The new version can also import entire Web sites rather than just single pages, and the fidelity of the import is vastly better, if far from perfect: the resulting page still requires tweaking, and Fusion can't import pages with frames. Likewise, frame support in version 2.0 is better but not perfect. Although Master Borders are the fastest, easiest way I've seen to create a site with frames, creating custom frames is awkward.

Fusion still suffers from poor design decisions. You can't open more than one window at a time, so it's impossible to drag elements from one page to another. You either have to leave a site open or quit the program; you can't simply park it in the background. Some dialog boxes and error messages are badly labeled or just plain uninformative. And the Mac version lacks the Windows version's database-connectivity features.



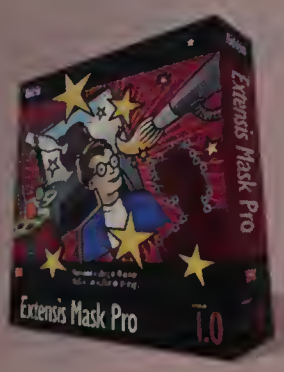
Dogs on the Side One of Fusion 2.0's more whimsical SiteStyles is shown here; the vertical navigation bar on the left is a Master Border element.

Macworld's Buying Advice

NetObjects Fusion 2.0 still shines for small-business users who want to put up good-looking sites quickly without digging into the underlying HTML, and for designers with particular ideas about how their sites should look. Fusion's automation and precision come at a price—at $695, Fusion is the most expensive of the Web authoring tools *Macworld* has reviewed. Just think of it as the QuarkXPress of Web publishing.—TOM NEGRINO

RATING: ★★★★/7.7 **PROS:** Excellent page layout and site management; improved importing; can include external HTML files. **CONS:** Expensive; some annoying interface quirks. **COMPANY:** NetObjects (415/482-3200, *www.netobjects.com*). **LIST PRICE:** $695.

GO AHEAD. KNOCK YOURSELF OUT.



EXTENSIS MASK PRO™, PAINLESS IMAGE MASKING IN PHOTOSHOP®

Go ahead. Knock yourself out. In fact, knock anything out with Extensis Mask Pro – the powerful Photoshop plug-in that takes the pain out of creating image masks. Innovative color matching technology and elegant vector-based clipping paths slash the time it takes to create professional quality masks.

Take control of the masking process with keep/drop color selections, edge softness, brush sizes, unlimited undo/redo and more.

Whether you're working in print or the Web, Extensis Mask Pro cuts masking projects down to size. Leaving you more time to create knock out design.

EXTENSIS MASK PRO 1.0

FOR ADOBE PHOTOSHOP
POWER MACINTOSH

$299.95

1.800.796.9798

MacWEEK MacUser

HOT PICK

New York '97

DOWNLOAD A FREE TRIAL VERSION OF EXTENSIS MASK PRO

Extensis™

http://www.extensis.com

SOURCE CODE 1087

Circle 13 on reader service card

NEW, LOWER PRICE.
Visit your local retail store or corporate reseller, or you can even see us at: www.iomega.com

TONS OF STORAGE SPACE
Increase your storage space — 100MB at a time for as low as $12.95 per disk after rebate. Perfect for storing and running your whole office.

COMPLETE PORTABILITY
The Zip™ drive and Zip disks are small, lightweight, and rugged. Which means you can take work home, on the road, or anywhere else you need to go.

FAST, EASY BACKUP.
Hooks up fast to your PC or Mac. And, at up to 20 times faster than that old floppy drive, it's great for making copies of everything. So the next time your computer spazzes out, you won't.

OVER FIVE MILLION OUT THERE. Forget about that old floppy drive. Zip drives are everywhere; at home, in schools, and at the office. In fact, they're the perfect complement to the enhanced audio and visual capability of today's MMX™ technology-based systems. And with so many Zip drives out there, it's more than just compatible, it's universal.

BECAUSE IT'S YOUR STUFF.™

iomega

©1997 Iomega Corporation. Iomega and the Iomega logo are registered trademarks, and Zip and "Because It's Your Stuff" are trademarks of Iomega Corporation. MMX is a trademark of Intel Corporation. All other trademarks are the property of their respective holders. Prices listed are estimated street prices. Actual prices may vary. Zip is compatible with Windows® 95, 3.1, NT, DOS, OS/2, and Mac OS. Up to 20 times faster using the SCSI or IDE models, up to 5 times faster using the parallel port model.

Circle 76 on reader service card

MiniCAD 7

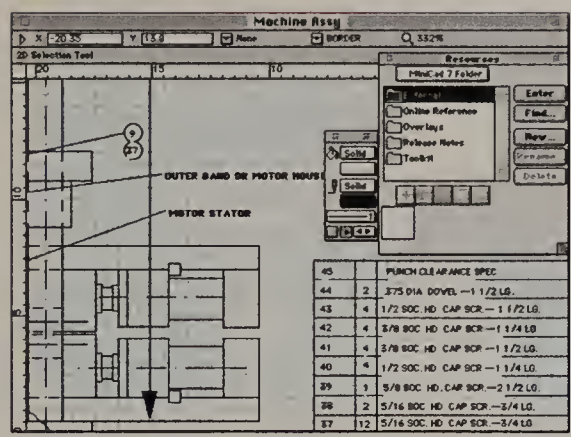
CAD LEADER IMPROVES ON THE BEST

DIEHL GRAPHSOFT'S MINICAD 7 incorporates hundreds of customer requests sent in over nearly 12 years. The resulting product is amazingly easy to use for a full-featured professional CAD system, and includes enough features and interface improvements that it may lure even die-hard fans of competing products into the fold.

MiniCAD can now tackle professional-grade 3-D modeling, with Add, Intersection, and Subtract commands that work directly on solid objects; you can build a library of 3-D objects in minutes, starting with a few primitive shapes. To display 3-D projects in their appropriate magnificence, version 7 uses QuickDraw 3D to support all sorts of shading options, light-source positioning, and third-party rendering engines. New dashed hidden lines give engineers an idea of what's actually going on beneath MiniCAD's beautifully shaded 3-D surfaces.

For day-to-day work, version 7 offers some major improvements. Dimensioning has been made more flexible: the same drawing can support both metric and English dimensions, and can feature varying decimal accuracies at different places in the drawing. MiniCAD's Smart Cursor—already the most informative mouse-driven object in CAD (changing shape for different drawing functions, identifying objects with its own text bar, and so on)—now adds sound. And there's a new audible click when you slide the cursor to the correct point in a drawing for modifying an underlying object (see "One Mouse Clapping"). Although this feature seems simple, it's a great frustration-saver in crowded drawings, sparing you numerous pokes at the same object.

A package of new features for architecture automatically generates floor plans, 2-D framing plans, and 3-D framing models, all with automatically joining walls. MiniCAD also includes a substantial tool kit covering major CAD fields—such as architecture, landscaping, product design, and engineering—and a tutorial that helps you use these prepared parts to build complex drawings in minutes. Worksheets have long been a key MiniCAD feature; as an additional time-saver, version 7 can generate a parts worksheet from your drawing using a single command.



One Mouse Clapping You can't hear it in this figure, but MiniCAD's Smart Cursor makes a distinct click to identify objects in version 7 drawings.

AutoCAD import and export dominates the translation needs of most CAD users. Because Diehl Graphsoft also produces MiniCAD 7 for Windows, it's fully aware of AutoCAD's DOS-style oddities, including special characters and treatment of drawing layers. Nonetheless MiniCAD 7's DXF/DWG file translator still experiences minor problems with details such as hatching and fonts when importing AutoCAD files; drawing elements translate correctly but style details don't always map properly. (MiniCAD also includes a ClarisCAD translator to rescue that program's abandoned users.) Graphsoft's superior customer support offers workarounds for some of these glitches, but others remain unresolvable. MiniCAD's only other weakness is that new users are likely to want a more intuitive or modern internal programming system than MiniPascal.

Macworld's Buying Advice

If you use your Mac daily for CAD, MiniCAD 7 is worth a look—even if you're happy with your current program. If you're using MiniCAD already, version 7's $195 upgrade price is a bargain, considering the wealth of useful new features. In short, MiniCAD 7 offers the most powerful CAD software available, at a still-modest price.—CHARLES SEITER

RATING: ★★★★/8.1 **PROS:** Automated drawing functions; Smart Cursor now even smarter; huge library of tools; stellar customer support. **CONS:** Minor file-translation problems persist; outdated MiniPascal language isn't intuitive. **COMPANY:** Diehl Graphsoft (410/290-5114, *www.diehlgraphsoft.com*). **LIST PRICE:** $795.

© 1997 Iomega Corporation.

(Digital Safe)

Iomega 100MB Zip™ disks give you the capacity to protect more.
Learn more about Iomega Zip drives and disks at: www.iomega.com/ZipIdeas

Buy smart with Macworld Lab.

Macworld LAB TEST

To buy smart when you're choosing Mac OS hardware or software, you've got to put it to the test. Macworld Lab is on the job, testing, scrutinizing, and evaluating the performance and quality of the products you need. With real-world testing, we measure performance by real-life standards. Using the system and applications you'd use to complete the tasks you're faced with every day, our experts come up with answers that matter to you.

You can rely on Macworld Lab Test results — We test the products the way you use them.

Macworld
THE ESSENTIAL MACINTOSH® RESOURCE

Overture 2.0

SHEET-MUSIC MAKER ADDS PRO-LEVEL FEATURES, COMPLEXITY

THE SCIENCE OF MUSIC NOTATION isn't much of a science; for every rule that exists, another rule violates it. (Eighth notes are beamed in pairs, *except* when the meter's numerator is a multiple of three, *unless* it's a complex polyrhythm . . .) That's why no music software can ever be both easy to use and complete. In version 2.01, Opcode Systems' Overture slides along the scale toward completeness—and away from simplicity.

Overture seems to have been designed (and named) in response to Coda Music's Finale, whose infinite flexibility has made it the best-seller for years, but whose complexity cows newcomers (see *Reviews*, May 1996). Dramatic design differences are everywhere: Where Finale requires a different tool-palette icon for each kind of musical marking, Overture's single Arrow tool selects and moves nearly anything in the score. Where Finale's MIDI features exist solely to input notes for printing, Overture's integrated sequencer makes the program just as good at *playing* the music. Dozens of musical tasks require only one step in Overture, making Finale's corresponding features look clunky by comparison.

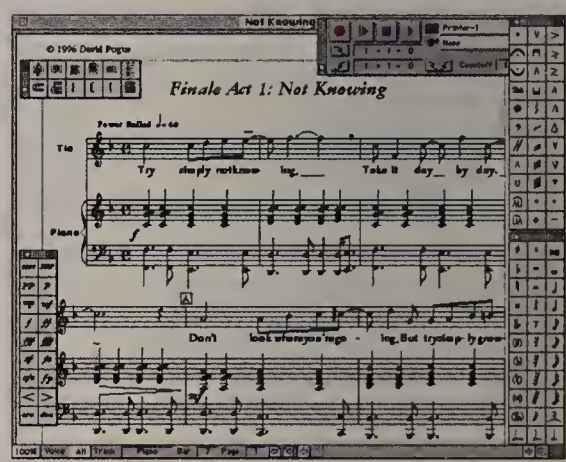
As with any new music program, however, the original Overture sacrificed flexibility for simplicity. In previous versions even intermediate musicians banged their heads against silly limitations: you couldn't put a triplet inside a triplet, make jazz markings or harp-pedal diagrams, write tablature, or draw lines and squares on your sheet music. All these limitations have been removed with finesse. The new features add still more tear-off palettes to the program's interface, though, making a large monitor even more important than it was before (unlike its rivals, Overture doesn't offer a horizontal scrolling view).

The primary new feature in 2.0, however, is a staggeringly complex system for managing sounds on multiple synthesizers. Studio musicians flanked by synths will appreciate this feature (and the 38 pages of documentation required to describe it), but the average teacher, band arranger, or amateur composer—Overture's real market—will wonder what the fuss is about.

Unfortunately, despite the handful of new professional features, many of the earlier irritants remain. The program still uses an infuriating copy-protection scheme that requires hard-disk authorization; if you reformat your hard drive without deinstalling the software first, your $495 program is vaporized. Overture won't run if its two extensions aren't in the System Folder, printouts can't approach the quality of Finale's, articulation marks don't play back, and stems don't automatically flip in the correct direction in two-voice passages. Finally, Overture is no rock of stability; the Read Me file lists 13 known bugs, including 3 that crash the program.

Macworld's Buying Advice

Overture's new features move it away from its original incarnation as a fast, simple sheet-music factory and into more professional territory. You're far less likely to be frustrated in your attempts to create piano parts, band charts, or even orchestral pieces in Overture 2.01 than in version 1.0. The result is a program with a split personality, combining high-end features with low-end limitations. Fortunately, nonprofessional musicians probably won't care; they'll revel in Overture's speed, natural ways of doing things, and beautiful integration of printed and played music.—DAVID POGUE



Prelude to Overture Most of Overture's new features are in the form of palettes. Unfortunately, there's no automatic way to get proper spacing; colliding lyrics still have to be fixed manually.

RATING: ★★★★/7.0 **PROS:** Easy to learn; equally good at printing and playing music; new pro-level features. **CONS:** Many clunky features still unaddressed; obnoxious copy protection. **COMPANY:** Opcode Systems (415/856-3333, *www.opcode.com*). **LIST PRICE:** $495.

Facing a tough audience?

Relax. You'll feel comfortable and look good presenting with a Philips LCD projector.

ProScreen LCD projectors: featuring unique PC compatibility from VGA up to XGA

Everything about the new Philips Brilliance LCD projectors is designed to boost your confidence. Unique Limesco technology offers future-proof PC compatibility and instant recognition of connected equipment. Hassle-free operation lets you concentrate on your performance, not your projector's. You'll impress your audience with award-winning picture quality. And with the Philips Ultra High Performance lamp you'll project brighter pictures for up to 5 times longer than with a conventional lamp. Sounds like what you need to win over your next audience? Call Philips directly 1-800-504-9978 or visit our Web site at http://www.philipslcd.com

Circle 13 on reader service card

Let's make things better.

PHILIPS

RUN

On Your Macintosh®

Windows NT, Windows 95, Windows 3.x
For Macintosh, Power Macintosh, PCI, or NuBus

Orange Micro®
OrangePC 340 NuBus from..... **$909**
OrangePC 420 PCI from **$538**
OrangePC 440 PCI from..... **$633**
OrangePC 525/530 PCI from..... **$759**
OrangePC 540 PCI from..... **$1108**

Radius/Reply®
DOS on PowerMac PCI starting at..... **$1490**

Insignia Solutions®
SoftWindows for PowerMac..... **$349**

Connectix®
VirtualPC..... **$169**

MacPowerhaus™

Specializing in Mac/Windows Solutions

(800) 615-3183 (714) 693-3718
email: info@macph.com
Circle 34 on reader service card

KeyQuencer 2.1

UPGRADE OFFERS NEW CONTROLS

KEYQUENCER OFFERS A LEAN, mean, inexpensive alternative to CE Software's QuicKeys, automating your Mac with less memory and for fewer dollars (see *Reviews*, December 1996). What prevents KeyQuencer from becoming the robot for the rest of us, though, is its lack of a "watch-me" mode for creating macros. Version 2.1 doesn't improve on the geekiness of KeyQuencer's interface—you still have to type short scripts. Instead, it adds power in the form of new commands, fewer bugs, and a suite of useful Internet macros.

Version 2.1's dozens of tiny enhancements include Sort, which alphabetizes Clipboard text; Keyboard, which switches keyboard layouts without opening the control panel; and ActivityMonitor, which adds an icon to your menu bar when KeyQuencer is working. A Stopwatch tracks KeyQuencer's own elapsed macro time in microseconds; Macworld Lab, which uses KeyQuencer to conduct speed tests, is especially fond of this feature.

A suite of handy single-key commands type common HTML tag pairs, making Web-page editing more efficient. And the NetText command ought to be a built-in Mac OS feature: it converts normal text into Net-ready text (or vice versa), handling end-of-line returns, funny punctuation, and beginning-of-line quotation brackets.

Macworld's Buying Advice
KeyQuencer still can't create a separate set of macros for each program you use, as QuicKeys does, and its macros still require programming. But version 2.1 can exert more direct power over various components of your Mac: file sharing, folders, files, monitors, CD-ROM drives, printers, and so on. Better yet, the upgrade is free, either on the Web or by mail.—DAVID POGUE

RATING: ★★★/6.9 **PROS:** Useful Internet enhancements; fewer bugs; more commands for specialized tasks. **CONS:** Still requires simple programming. **COMPANY:** Binary Software (310/449-1481, *www.binarysoft.com*). **LIST PRICE:** $39.95.

SPSS® 6.1 for the Macintosh®

Real Stats. Real Easy.

Accelerated for the Power Mac!

Use SPSS 6.1 for the Macintosh when you need in-depth answers quickly and easily. Go beyond summary statistics and spreadsheet row-and-column math by using the right tool for the job. SPSS is a complete tool kit of statistics, graphs and reports that enables you to answer tough questions like:

- Why did sales drop in the last quarter?
- How satisfied are my customers?
- What are the patterns in my data?

SPSS products are used today for:

Survey research
- Explore consumer awareness
- Compare perceptions of products
- Discover preferences by group

Marketing and sales analysis
- Analyze your customer database
- Forecast sales by product and region
- Improve mailing responses
- Determine which promotions work best

Quality improvement
- Assess process capability
- Reduce nonconformance
- Spot unnatural patterns of variation
- Track incidence of infection

Research of all types
- Test hypotheses
- Determine group differences
- Track performance over time
- Prepare professional reports

Answer your tough questions

From the most basic to the most in-depth analysis, SPSS 6.1 for the Macintosh gives you a wide range of statistics. Use procedures from counts and crosstabs to regression, factor, Kaplan-Meier plus over 60 more! SPSS gives you all the statistics you need to answer your tough questions.

All statistics are in organized, easy-to-use menus and dialog boxes. Get up and running quickly with the online tutorial. Task-oriented help and a statistical glossary guide novices and experts alike.

See your results clearly and pinpoint your answers easily with 50+ fully-integrated, high-resolution charts.

Take advantage of System 7 features such as Apple® Events, Balloon Help™ and AppleScript™ support.

Working with SPSS couldn't be easier. Call today to find out how to answer your tough questions every day with SPSS 6.1 for the Macintosh!

Get a great value – order now!

1 (800) 457-8287

Fax 1 (800) 841-0064

Our WWW site http://www.spss.com

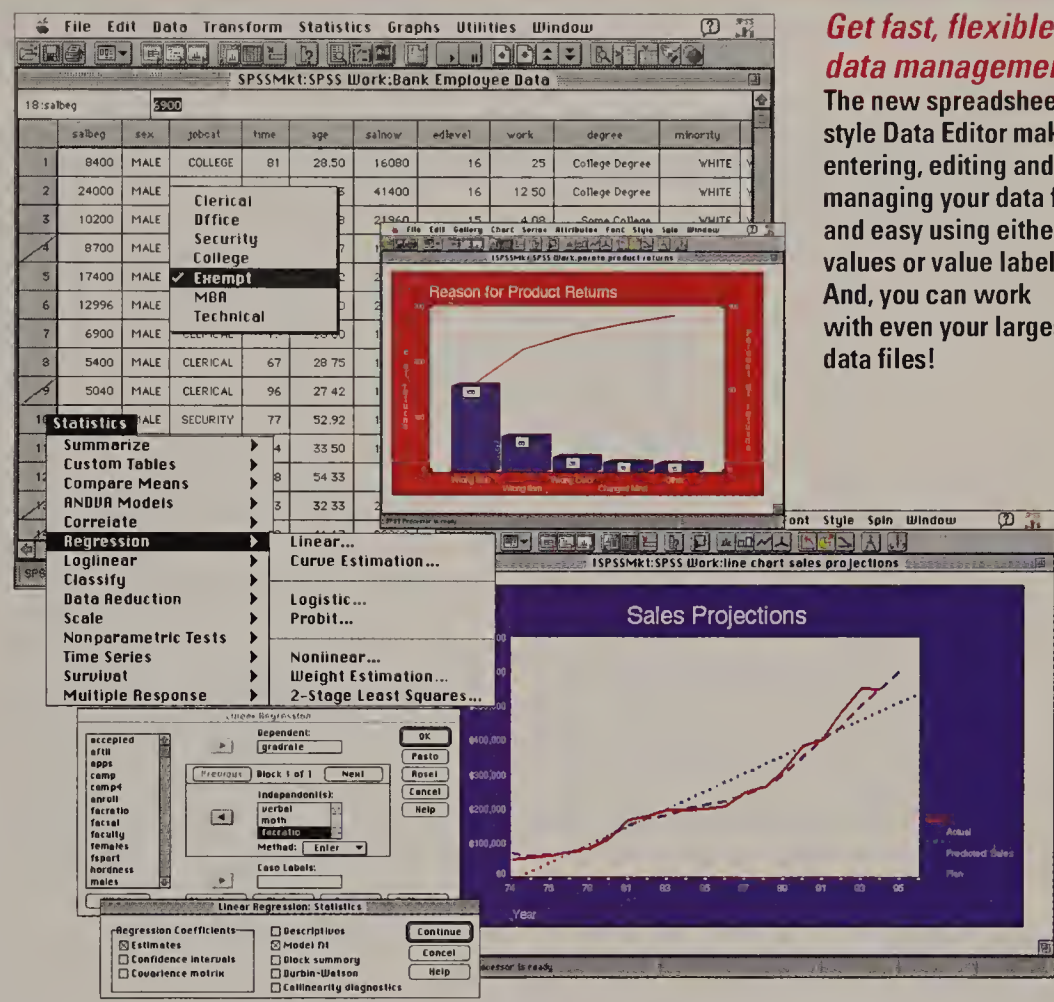
Circle 85 on reader service card

Get answers to tough questions using in-depth statistics!

Work with 60+ statistical procedures from basics such as counts and crosstabs to more sophisticated statistics including factor, regression and logistic regression.

Work faster with an all new Macintosh interface!

Learn faster using an online tutorial and speed up analysis with task-oriented help, a statistical glossary and a new toolbar. Plus, all statistics are located in organized, convenient menus and dialog boxes for fast access without having to type commands!



Get fast, flexible data management!

The new spreadsheet-style Data Editor makes entering, editing and managing your data fast and easy using either values or value labels. And, you can work with even your largest data files!

See your results quickly and clearly!

Use 50+ integrated, high-resolution charts and graphs. Choose from business, statistical and SQC charts. All charts can be fully edited with point-and-click accuracy through tear-off menus and palettes.

Take a closer look at SPSS 6.1 for the Macintosh:

- All new Macintosh interface
- 60+ statistical procedures – from the most basic to the most advanced
- Work with even your largest data files
- 50+ integrated, high-resolution business, statistical and quality charts with automatic labels, including: Bar, Area, Pie, High-Low-Close, Histograms, Scatterplots, Boxplots, Error bars, Pareto, X-bar, Range, Autocorrelation Plots and many more
- Create labeled charts automatically as part of SPSS' powerful statistical routines
- Choose the right chart with the SPSS' Chart Advisor
- Toolbar with one-button access to statistics, commonly used functions and results. Plus, with the Dialog Box Recall button, SPSS remembers your last 12 steps making it fast and easy to do ad hoc or refine analyses
- Supports Apple® Events required suite
- Quickly build error-free production jobs from SPSS dialog boxes or type commands using our command language. Use AppleScript™ to run your production jobs unattended
- Hot buttons between graphs and numerical output
- New spreadsheet-style Data Editor makes it easy for you to enter, edit, browse and manage your data. Display values as labels or as numbers
- Option-click any variable cell to see a pop-up menu of value labels
- Save time by defining templates for variable definitions you use frequently
- Identify individual cases in scatterplots and boxplots and see related cases highlighted in the Data Editor
- ODBC database access
- Access files in other applications through Easy Open translators
- Complete report writer
- Online tutorial with step-by-step instructions and system overview
- Task-oriented help system
- Glossary of statistical terms
- Documentation that clearly explains statistics
- Technical support for statistical and operational help
- Explore data more thoroughly with factor, cluster, discriminant analysis and more with SPSS Professional Statistics™
- Execute advanced multivariate techniques such as Cox regression, Kaplan-Meier estimation, logistic regression and more with SPSS Advanced Statistics™
- Create customized tabular reports with SPSS Tables™
- Predict the future using advanced time-series analysis in SPSS Trends™
- Perform perceptual mapping, conjoint analysis and optimal scaling procedures with SPSS Categories®

Mac OS

Get a great value – order now!

Call 1(800) 457-8287

Fax 1 (800) 841-0064

or mail to: SPSS Inc.
444 North Michigan Avenue
Chicago, IL 60611

American Express, Discover, MasterCard, VISA and I.M.P.A.C. cards accepted

Name _____
Title _____
Organization _____
Address _____
City _____ State _____
ZIP _____ E-mail _____
Phone number ( ) _____
Fax number ( ) _____

Try SPSS 6.1 for the Macintosh with our unconditional, 60-day money-back guarantee.
(U.S. and Canada only)

A8287

SPSS

Real Stats. Real Easy.℠

Chicago • Washington, D.C. • Boulogne • Chertsey • Gonnchem • Madrid • Munich • New Delhi • Singapore • Stockholm • Sydney • Tokyo • And distributors worldwide

Scorpio 1.1

MINUSCULE WORD PROCESSOR'S PRICE IS ITS BEST FEATURE

AS WORD PROCESSORS BREAK the 50MB barrier, it's fortunate that not every software company thinks big; with Scorpio 1.1, Abbott Systems thinks positively microscopic. The company urges you to consider this tiny, lean word processor as an upgrade to SimpleText and points out that Scorpio costs less than the *sales tax* on Microsoft Word.

Scorpio requires a nearly invisible 350K on disk and a paltry 1280K of RAM. It's also quick, opening a 50-page Word 6 document in under a second using Claris's XTND filters for exchanging documents (they're not included, but if you own any Claris products they're already on your hard drive.)

If small were all, SimpleText would take the cake. Fortunately, you do get some meaningful features in Scorpio: a simple spelling checker; search and replace; word count; color text and background; margins and tab stops; and page numbering. Like SimpleText, Scorpio can read your masterpiece out loud in one of PlainTalk's drunken voices. There's even an icon bar so that you won't feel too left out of the Microsoft generation.

The Score on Scorpio You certainly can't accuse Scorpio of interface overload; unfortunately, you have to highlight a paragraph completely before you can adjust the margins.

Scorpio also offers two completely fresh ideas. A tool-bar pop-up menu automatically inserts the date or time; or your name, address, phone number; or your Internet address. And Scorpio (like the company's CanOpener utility) can open *any* file on your hard drive—be it document, application, corrupted PC file, anything—promptly salvaging and displaying any text inside.

Because the world *needs* more small, fast $29 programs, Scorpio's downside is heartbreaking. Chief among the missing features is text drag and drop; even SimpleText offers this essential editing tool. (Also missing is the usual checklist of high-end features—thesaurus, tables, headers, footnotes—but those aren't the essentials Scorpio was designed to embrace.)

The keystrokes for bold, italic, and other styles are ⌘-shift-B, -I, and so on—a forgivable sin if the program used ⌘-B and -I for other functions, but it doesn't. Another rotten decision: fractional character widths in other programs is permanently enabled in Scorpio, so text is beautifully spaced in printouts but jostled on screen.

Macworld's Buying Advice For revenge on the excesses of Microsoft Word and Corel WordPerfect, buy the elegant, friendly $50 Mariner Write (see *Reviews*, March 1997). It's nearly as small, fast, and inexpensive as Scorpio but much less likely to make you feel claustrophobic. Still, Scorpio's text-recovery feature alone is worth $29, and its tiny size makes it perfect for running on PowerBook RAM disks, creating spell-checked Read Me files, and word processing for the featurephobe.—DAVID POGUE

RATING: ★★★/6.2 **PROS:** Small, quick; extracts text from any file on earth; extremely inexpensive. **CONS:** No drag and drop; letters run into each other onscreen; bizarre keyboard shortcuts. **COMPANY:** Abbott Systems (914/747-4201, *www.abbottsys.com*). **LIST PRICE:** $29.

QuicKeys

Perform Miracles on Your Mac

Old Mac®, new Mac. Fast Mac, slow Mac. Apple® or clone. QuicKeys® performs miracles. Every repetitive step you take, each mouse movement or menu selection can become a QuicKeys sequence that you can activate with a click. The result? You fly through tasks like logging on, converting files, printing, formatting, entering passwords and more. Any tedious task, simple or complex, can be triggered with QuicKeys shortcuts. And *you* receive the miracle of saving time.

Get QuicKeys now–$99.95.

ORDER TODAY! 800-579-9729
QK 2174

Accelerated for Power Macintosh

1997 Macworld WORLD CLASS AWARD WINNER

CE SOFTWARE

MW ★★★★

©1997 CE Software, Inc. CE Software and the CE Software logo are trademarks and QuicKeys is a registered trademark of CE Software, Inc. All other brand or product names are trademarks or registered trademarks of their respective holders.

http://www.cesoft.com

Circle 170 on reader service card

www.macworld.com/buyers/shframed.htm

Mac shopper

Want bargains online?

Bookmark the Mac Shopper at:

Macworld Online

Contact Macworld on how to advertise. (800) 888-8622

You Gotta Love a Guy Who Thinks the Bureau of Alcohol, Tobacco & Firearms is a Convenience Store

"Absolutely the best first-person game of the year, bar none...Duke Nukem is the undisputed king."
Boot Magazine

"Gives players something they can't get elsewhere: A hero with an attitude."
Wall Street Journal

"★★★★★" (5 out of 5 stars)
PC Games

"★★★★★" (5 out of 5 stars)
Computer Life

"Duke is king."
Computer Gaming World

"A perfect 10!"
Computer Player

#1 Selling PC Game of 1996
Available Now
for Macintosh

ATOMIC EDITION

DUKE NUKEM 3D™

for Macintosh®

Circle 30 on reader service card

Now available at most major retailers, MacZone and Mac Connection.
Or, order direct by calling:
800-229-2714

Created by 3D Realms

Mac version by Lion Entertainment, Inc.

MacSoft®

2300 Berkshire Lane No., Plymouth, MN 55441 • 612-509-7600
Call for a free catalog or visit our website at www.wizworks.com

System Requirements: Any Macintosh with a 68040 or higher microprocessor, 8MB RAM, color monitor and CD-ROM drive. Also accelerated for Power Macintosh.

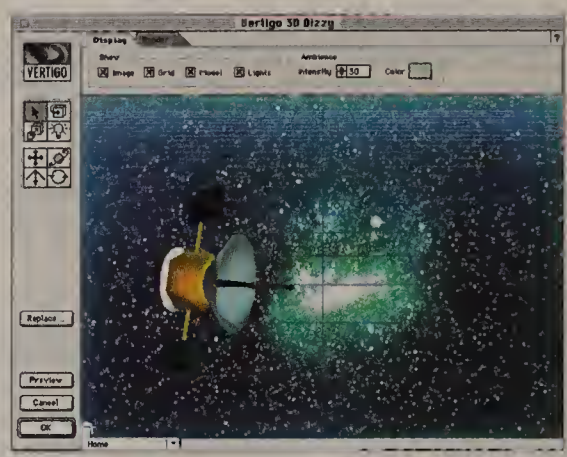
Vertigo 3D Dizzy

PHOTOSHOP PLUG-IN IMPORTS QD3D MODELS BUT LACKS DEPTH

HAVE YOU EVER WANTED TO SIMply drop a 3-D object onto a 2-D image? That's the idea behind Vertigo Technology's Vertigo 3D Dizzy, a new plug-in that lets you import QuickDraw 3D (QD3D) models and render them within Adobe Photoshop (it also works with Adobe Illustrator). It sounds great in theory, but in practice Dizzy still needs a bit of work.

Dizzy imports models into a mini–3-D environment in which you position, rotate, and scale the models directly on a preview of the 2-D image. Dizzy can work on only one model at a time, unfortunately, and the jerky movement makes precise positioning a chore. Although you can relocate the camera and save custom views, camera controls are limited and a bit unorthodox: when you drag the Camera Move tool upward, for example, Dizzy's ground plane moves upward, but the camera has actually moved downward. Adjusting the view can make your head spin, especially if you're trying to match the perspective of a background image.

Dizzy offers an ambient light source, to which you can add as many as five point lights to give the model visual definition. Both types can be colorized, but you can modulate only the ambient light's effect. When you're done, Dizzy automatically renders and composites the model with the image. But to render models to a layer in Photoshop, you must preselect the layer; that means you won't see the background image in the preview.



Demands of Galactic Proportions Vertigo 3D Dizzy demands lots of RAM for its best rendering options; 40MB wasn't sufficient to render this model using the LightWorks SuperLite engine.

Dizzy can accept QD3D plug-in renderers in addition to QD3D's interactive renderer. It comes with ThinkFish's LiveStyles (for producing illustration-style images) and the memory-hogging LightWorks SuperLite engine, which produces shadows, transparency, and antialiasing (though given its memory demands, you may be better off using a modeling-and-rendering program and traditional compositing techniques when placing a model in a photograph).

Dizzy also comes with more than 500 QD3D models. Most are simple in construction and texturing, however, making them better suited to use with illustrations than with photos.

Macworld's Buying Advice Despite its shortcomings, Vertigo 3D Dizzy offers a simple and relatively inexpensive way to incorporate 3-D models into Photoshop and Illustrator images. Graphic artists with RAM to spare will find Dizzy a practical addition to their plug-in collections, and one that should become more useful as other QuickDraw 3D plug-in renderers appear.—CARLOS DOMINGO MARTINEZ

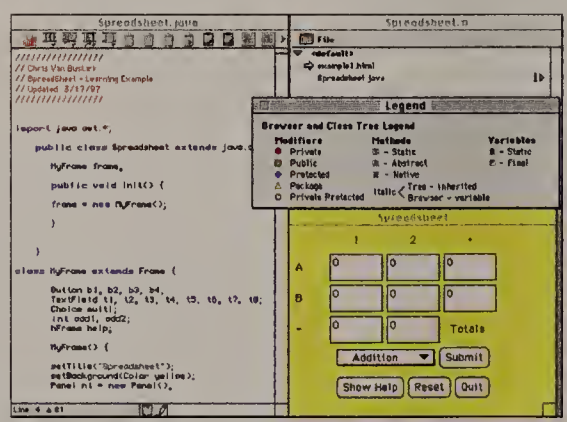
RATING: ★★★/5.4 **PROS:** Easy integration of 3-D models with 2-D images. **CONS:** Uncooperative 3-D environment; limited lighting tools; dizzying RAM requirements. **COMPANY:** Vertigo Technology (604/684-2113, *www.vertigo3d.com*). **LIST PRICE:** $119.

Roaster Release 3

JAVA FOR THE MASSES

ONE OF THE BRIGHTEST HOPES for the Mac is undoubtedly its strength as a Java platform; the only question is which Java package to buy. At the moment, Roaster Release 3 is the leading answer for Macintosh users. Described as the first "nondeveloper" release—in other words, it's now thoroughly debugged—Roaster 3 gets Roaster Technologies (a recent spin-off of Natural Intelligence) off to an impressive start.

Although Roaster 3 is the Mac Java tool best suited to delivering large-scale, professional, stand-alone applications, it also produces cross-platform applets that run inside a browser. You can build Mac-specific, double-clickable applications that incorporate Roaster's Java run-time engine. For cross-platform apps (those that execute as Java byte-code rather than native machine code), Roaster puts your work—typically 100 or more separate class files—into a single .zip file that both Windows and Unix systems can use. Besides being the fastest Mac compiler of new applets, Roaster 3 also yields stand-alone databases and other business applications whose performance is comparable to that of commercial software written in C++—an impressive feat in Java.



Numbers Game Roaster Release 3 makes it easy to create fast, stand-alone number-crunching and database applications in Java.

The Roaster environment now includes Netscape's Internet Foundation Classes, along with a huge collection of public-domain applets from Sun Microsystems, Apple, and Java books. You can learn Java pretty quickly by choosing a sample applet that has many of the elements you need for your own programming project. Roaster 3 also includes OpenLink Software's JDBC drivers, which support connection to ODBC databases; a long list of third-party Java tools; and Object Design's Java API, ObjectStore PSE. This API makes Java objects a useful component of fast online-database searching—technically, it makes persistent objects available as searchable data holders for transaction processing. Roaster's first-rate technical support can walk you through creating an ObjectStore program.

If, like most Mac programmers, you've been using the Metrowerks and Symantec development environments, you'll have some keystroke habits to relearn. Fortunately, the rewards of using the Roaster IDE are plentiful.

Macworld's Buying Advice If your only goal is to add visual interest to your Web page, you're better off with Symantec's Visual Cafe (see *Reviews*, May 1997); Roaster's main concessions to neophytes are a comprehensive set of examples and a self-explanatory interface (see "Numbers Game"). But if you're professionally committed to producing high-end Java applications, especially those involving database access, Roaster Release 3 is the most powerful Java tool set you can buy for the Mac.—CHARLES SEITER

RATING: ★★★★/7.7 **PROS:** Best tool for many serious Java jobs; great compile speed, unequaled tech support. **CONS:** Nonmainstream IDE. **COMPANY:** Roaster Technologies (617/876-4031, *www.roaster.com*). **LIST PRICE:** $99.

From the Darkest Reaches of Space
He's Been Waiting For You

"The ultimate game of galactic conquest"
Computer Gaming World

MASTER OF ORION™ II
BATTLE AT ANTARES™

You prayed they would never return. But now, from the deepest reaches of outer space they plan their revenge. Introducing Master of Orion™ II. Discover new technology. Command detailed tactical combat. Come face-to-face with new alien creatures. Use the multi-player feature to challenge friends over a local area network, go head-to-head via modem, or compete in a hot seat game. Whatever you do, lead your team cautiously. Because you must master the ultimate evil before it masters you.

Created by
MICROPROSE

©1996, 1997 MicroProse Software, Inc. and WizardWorks Group, Inc. Master of Orion and Battle at Antares are trademarks of MicroProse Software, Inc.

Available at your local reseller
or by calling 800-229-2714

System Requirements: Any 68040 or higher Macintosh with at least 8MB RAM, color monitor and CD-ROM drive. Also accelerated for Power Macintosh.

Circle 28 on reader service card

MacSoft®

2300 Berkshire Lane No., Plymouth, MN 55441 • 612-509-7600
Call for a free catalog or visit our website at www.wizworks.com

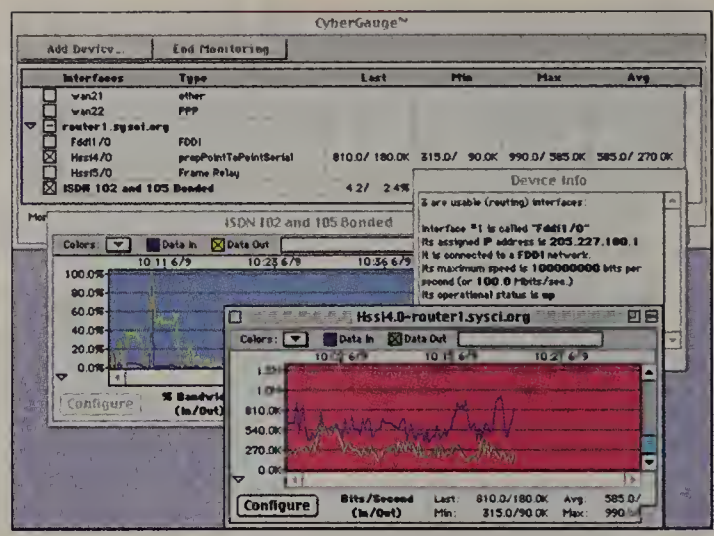
CyberGauge 2.0

EASY NETWORK TRAFFIC MEASUREMENT

NEON SOFTWARE'S NETWORK speedometer, CyberGauge, has been a track favorite with users since it was released last year (see *Reviews*, November 1996). As an inexpensive tool for monitoring the bandwidth use of network devices, it has no peer. In version 2.0, Neon has added several much-needed features and additional capacity without bumping up the price.

CyberGauge uses the Simple Network Management Protocol (SNMP) to measure the flow of traffic in a network device—such as an Internet router, an Ethernet hub, or a server—from a remote location. New with version 2.0 is the ability to monitor two devices simultaneously and any number of interfaces per device. CyberGauge displays separate graphs for each device, tracking the ebb and flow of data in bits per second or as a percentage of total available bandwidth.

When you launch CyberGauge, it asks for the name or IP address of the device to be monitored. CyberGauge retrieves information about the device's capabilities and interfaces, then presents you with a simple checklist of interfaces to monitor. The installation disk supplies monitoring tips for certain network devices, including those from Ascend and Cisco Systems, along with a comprehensive user's guide.



Watch for Traffic CyberGauge lets you simultaneously monitor up to 20 devices and any number of interfaces per device.

Although CyberGauge is easy to run right out of the box, it also has some advanced features you can grow into. Changeable background and graphing colors make it easy to sort through displays for multiple devices and interfaces, and an enhanced data-export option lets you collect statistics for subsequent processing by high-powered network performance analyzers. A bonding feature lets you treat several channels as a single unit to measure combined traffic flow.

Also new with version 2.0 is the ability to export a JPEG file periodically for any graph, so you can publish your network's performance via a Mac Web server. And you can now save an entire suite of CyberGauge settings and collected statistics, then later resume monitoring automatically by opening the saved document.

Macworld's Buying Advice Although it can be expensive for multiple devices, CyberGauge is the only low-entry-cost, low-effort network-monitoring tool around. If you're responsible for network use or performance, this is an essential tool to keep in your bag of tricks.—MEL BECKMAN

RATING: ★★★★/8.8 **PROS:** Inexpensive for a few devices; easy to use; data capture with text and JPEG export capability; no limit on number of interfaces per device. **CONS:** Expensive for monitoring many devices. **COMPANY:** Neon Software (510/283-9771, *www.neon.com*). **LIST PRICE:** $139 (2 devices) to $695 (20 devices).

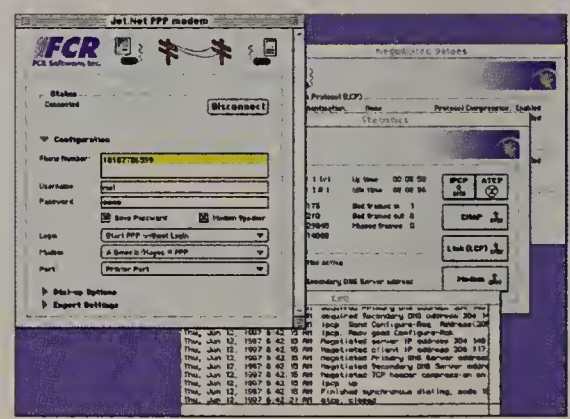
LinkUPPP 1.1

REMOTE-ACCESS CLIENT DELIVERS

FOR YEARS USERS STRUGGLED with inadequate shareware PPP dialers, remote-access clients that connect a Mac to the Internet or to a networked remote-access server. Apple finally delivered its official PPP Dialer as part of Open Transport, but it's underwhelming: there's no AppleTalk support, the library of modem scripts is paltry, and the diagnostics are useless.

FCR Software has jumped into the void with LinkUPPP 1.1, a PPP dialer that offers AppleTalk TCP/IP support, a huge library of modem and log-in scripts, SLIP (Serial Line Internet Protocol) support, CHAP (Challenge Handshake Authentication Protocol) passwords, and very slick diagnostics, all at speeds up to 230 Kbps. I tested LinkUPPP with a variety of modems and ISDN terminal adapters and with both TCP/IP and AppleTalk networking. It worked flawlessly in all cases.

LinkUPPP comes on a single floppy accompanied by a handy quick-start guide. The installer not only makes installation easy, but automatically moves any existing PPP dialers to a Removed Items folder and loads an excellent online user's guide that you can read with any Web browser.



Detailed Diagnostics LinkUPPP's sophisticated diagnostic displays make troubleshooting easy.

You configure LinkUPPP by launching it, selecting a modem script (scripts for 56-Kbps modems aren't yet available), and entering information about the remote server; then you start the network connection by clicking on Connect. Unlike Apple's solution, LinkUPPP includes an intelligent generic dialing script that can figure out almost any server's log-in requirements.

Because you save your connection configuration as a document, it's easy to use LinkUPPP to connect to several services; you simply create a LinkUPPP document for each. If necessary, you can invoke LinkUPPP's advanced options to specify autodialing, redial on busy, and other PPP parameters. To make a document your default network connection, you just drop it onto your Startup Items folder.

Although LinkUPPP normally dials in the background, three windows let you check the status of a connection or monitor the dial-up process. One window shows the link status, time connected, and traffic counts; the second displays the parameters (such as header compression) negotiated with the remote server; and the third is a detailed log of LinkUPPP's conversation with the remote server. Such sophisticated diagnostic aids are indispensable for troubleshooting and can save hours of tinkering.

Macworld's Buying Advice LinkUPPP's intelligent log-in, detailed diagnostics, and elegant interface make PPP dial-up networking a snap. Your time is valuable, and the hours you waste tinkering with a PPP dialer can easily outstrip the relatively minor cost of LinkUPPP.—MEL BECKMAN

RATING: ★★★★/8.6 **PROS:** Inexpensive; AppleTalk support; intelligent generic dialer; extensive diagnostics. **CONS:** Lacks scripts for 56-Kbps modems. **COMPANY:** FCR Software (617/494-1300, *www.fcr.com*). **LIST PRICE:** $59 (multiuser pricing available).

quake® for macintosh
arrives mid-july

for more information:
www.wizworks.com

www.idsoftware.com

MacSoft®

2300 Berkshire Lane No., Plymouth, MN 55441 • 612-509-7600

Quake® ©1996 Id Software, Inc. All rights reserved. Published by Id Software, Inc. Distributed by MacSoft under license, a division of GT Interactive Software Corp.
Quake® is a registered trademark of Id Software, Inc. Macintosh is a registered trademark of Apple Computer, Inc. All other trademarks are the property of their respective owners.

Circle 30 on reader service card

MacSpartan Plus 1.1

REAL CHEMISTRY ON THE MAC

WAVEFUNCTION'S MACSPARtan Plus, a molecular modeling program that lets chemists interpret chemical properties visually on a Mac, has arrived just in time to help introduce a whole new field. Combinatorial chemistry, a new twist on traditional organic chemistry, links smaller organic molecules in random combinations to make up thousands of trial molecules, then tests these huge collections for pharmaceutical activity. This relatively young method has dramatically increased the demand for software that allows convenient desktop molecular modeling and calculation of molecular properties.

MacSpartan Plus 1.1 is the best program for understanding both combinatorial and traditional chemistry. This powerful software creates 3-D pictures that show calculated charge distribution and other fundamental properties that used to require a Unix-based scientific workstation. MacSpartan has basic molecular-mechanics capabilities comparable to those of modeling packages associated with chemical databases; it also yields files that are compatible with other programs.

Molecules Everywhere MacSpartan can exchange information with other molecular modeling software, both simple and advanced.

But MacSpartan goes beyond basic parameter-based modeling, to include several more-powerful primary methods; two of these methods are semiempirical calculation of orbitals and ab initio calculation of molecular wave functions. This set of calculations has enough power to predict how some molecules will react to generate superb classroom graphics of orbital models for ground states and excited states, and to investigate the activity of powerful new combinatorial drugs. For calculating small property differences between very similar molecules, the fundamental issue in much of combinatorial chemistry, MacSpartan is the best commercial Mac package available.

Using MacSpartan for research on molecules with a few hundred atoms demands a 200MHz or faster Power Mac. In the scientific computing market, that's not much of a drawback—just a few years ago ab initio and other research-level computations were typically done using a Cray supercomputer, and the Mac actually produces better graphics than old supercomputers.

MacSpartan comes with a booklet covering the key topics in quantum chemistry from a typical advanced-organic course. A less useful accompaniment is the separate program that handles online help, though admittedly the average MacSpartan user won't require much guidance.

Macworld's Buying Advice For research or teaching, MacSpartan Plus does a great job of integrating computation and graphics. On a new, high-end Mac, this program puts serious computer chemistry in every lab.—CHARLES SEITER

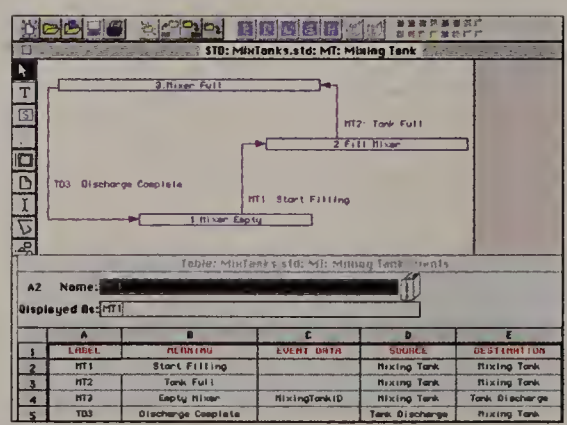
RATING: ★★★★/7.4 **PROS:** Performs Cray-level quantum mechanics on large organics; easy to use. **CONS:** Oddly implemented help system. **COMPANY:** Wavefunction (714/660-6101, *www.wavefun.com*). **LIST PRICE:** $999 ($449 educational).

MacA&D 6.0

MAKING A CASE FOR CASE TOOLS

ALTHOUGH CASE (COMPUTER-aided software engineering) tools are firmly in place at big companies, an amazing number of small Mac developers work from program specs scribbled on a whiteboard by the marketing VP. Excel Software, developer of MacAnalyst and MacTranslator, comes to the aid of beleaguered programmers with a CASE tool for top-down design. MacA&D 6.0 lets you outline a program's functions, then generate the line-by-line code from this high-level description. It's relatively easy to learn (considering the sophistication of the methods it supports), it's fast, and at the moment it has no real competition—although programs like Pictorius's Prograph CPX and Mainstay's VIP C (see *Reviews*, July 1996) also offer diagram-to-code translation, they don't follow the standard framework established by Edward Yourdon and other object-design pioneers.

CASE tools have a common goal: to produce a top-down design of a program's code so that different parts can be assigned to different programmers and still fit together in the final version. In MacA&D, the programming effort starts with a high-level diagram that outlines the main program functions and serves as a sort of combined table of contents and glossary (double-clicking on diagram elements opens both a specification and a text listing of associated code).



CASE Study This Shlaer/Mellor data diagram and its associated table are one way MacA&D highlights critical elements of a large program.

MacA&D produces working code from the abstract views you draw with its graphical tools: class diagrams generate C++ code, structure charts translate directly into C and other classic procedural languages (such as BASIC, FORTRAN, and Pascal), and data models generate sets of SQL commands. A companion product, WinA&D, sports the same model-to-code translation functions for Intel-based systems, so programmers have to learn only one set of CASE tools for the two main commercial platforms.

The latest version offers a tool-bar button for frequently used diagramming functions and an Icon Manager that lets you take your diagram beyond ovals and rectangles. You can model your program's critical functions, typically involving timing issues, with state diagrams and state tables that give you an overview of the project and make it easier to allocate team efforts and mark realistic milestones (see "CASE Study").

Macworld's Buying Advice MacA&D 6.0 is one of the few effective program-design aids for organizing enterprise-scale C and SQL projects on the Mac, and it lets Mac programmers use their program blueprints in Windows 95 and NT environments. It could stand a Web update—there's no provision here yet for the rise of Java as a popular programming language—but it's a first-rate, real-world tool for professionals.—CHARLES SEITER

RATING: ★★★/6.9 **PROS:** Complete set of CASE tools for standard languages. **CONS:** Needs a Java update. **COMPANY:** Excel Software (515/752-5359, *www.excelsoftware.com*). **LIST PRICE:** $1995.

Take on History's Greatest Leaders and Show Them Who Rules

★★★★★
Computer Gaming World

"Simply the Best"
Strategy Plus

SID MEIER'S

CIVILIZATION II®

THE ULTIMATE VERSION OF THE BEST-SELLING STRATEGY GAME

Make every critical social, economic and political decision as you build an empire to span history. Compete against and defeat some of the greatest leaders of all time. Encounter historical tribes like the Celts, Japanese, Vikings and Sioux. Create Wonders of the World like Leonardo da Vinci's Workshop and Sun Tzu's War Academy. It's strategy. It's discovery. It's diplomacy. It's your destiny. So plan your every move carefully. Because in this game, you either stand the test of time or you're history.

Created by
MICROPROSE®

©1996, 1997 MicroProse Software, Inc. and WizardWorks Group, Inc. Sid Meier's Civilization is a registered trademark of MicroProse Software, Inc.

Available soon at your favorite reseller
or by calling 800-229-2714

System Requirements: Any 68040 or higher Macintosh with at least 8MB RAM, color monitor and CD-ROM drive. Also accelerated for Power Macintosh.

Circle 29 on reader service card

MacSoft®

2300 Berkshire Lane No., Plymouth, MN 55441 • 612-509-7600
Call for a free catalog or visit our website at www.wizworks.com

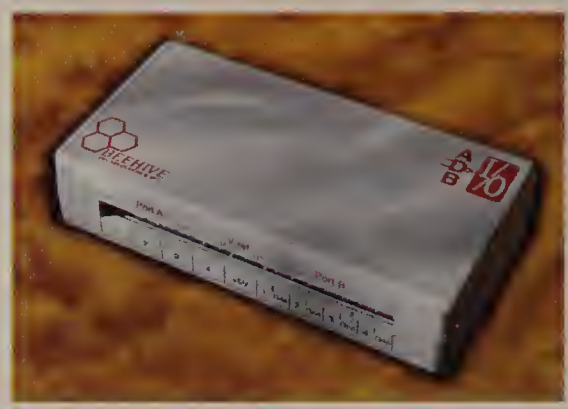
ADB I/O

INGENIOUS GADGET LETS YOU CONTROL YOUR WORLD

ONE OF THE FEW MAC PERIPHerals to engender what I call Pure Geek Joy is BeeHive Technologies' ADB I/O. This hardware add-on for the Mac ADB port (where your keyboard and mouse plug in) sports eight pairs of electrical terminals that let you put all manner of sensors and switches under the control of your Mac.

For example, you can use it to log temperature and humidity readings, switch lights and appliances on and off, or check your *real* mailbox over the Internet (assuming you can get the wires out to it, that is). I attached a cheap temperature probe to an input port and an AC relay to an output port, then used the supplied HyperCard application to turn on my TV by putting the probe in a cup of hot tea. In a slightly more practical vein, you could use the ADB I/O to synchronize a Macromedia Director presentation with external lights, sound, and prerecorded video.

The ADB I/O controller's small plastic case is roughly the size of a paperback book, with two ADB connectors and eight pairs of screw-down electrical terminals; each pair of terminals lets you attach a sensor or remotely controlled switch. You connect the ADB I/O in line with your keyboard or mouse or to a second ADB port. Because the ADB I/O gets its power directly from the ADB port, installation is extremely easy. Internal jumpers let you assign a unique ID code to an ADB I/O unit, then connect up to four separately controllable ADB I/Os to the same Mac.



SUZANNE ROADY

The first group of screw terminals act as programmable switches for turning electrical devices on and off; the second set work as analog-to-digital converters for reading analog voltage values from sensors, such as temperature probes. To manipulate household appliances, you need an external relay. (Both sensors and external relays are available at electronics stores.)

The package includes a well-written user's guide and a slew of software drivers for HyperCard, AppleScript, Director, ACI US's 4th Dimension, and C programming environments. BeeHive's Web site offers lots more, including Java software drivers and various Internet interfaces.

The only negative aspect of the ADB I/O, other than all the time lost to developing a remote-control kitty-litter sifter, is the need to power down your Mac when attaching or removing input sensors. Eliminating this requirement by improving the product's electrical isolation would make experimenting easier.

Macworld's Buying Advice The ADB I/O is safe and easy enough to use that elementary-school children can have fun with it. If you can screw down two wires, you can use it to achieve total world domination—or at least total control of your home appliances.—MEL BECKMAN

RATING: ★★★★/8.1 **PROS:** Easy to use; supports multiple units in series; both analog and digital input and output; plentiful software drivers. **CONS:** Requires powering down Mac to connect sensors. **COMPANY:** BeeHive Technologies (818/304-0664, *www.bzzzzzz.com*). **LIST PRICE:** $199.

WITH RESOLUTION LIKE THIS, THE ONLY DIFFERENCE BETWEEN THESE TWO IMAGES IS THE SIZE.

Introducing the EPSON PowerLite™ 7000 projector with 1024 x 768 resolution.

Finally, a projector that gives you the power to present your ideas anywhere, under any lighting condition, using any kind of computer.

Because only EPSON,® the world leader in portable projectors, gives you SizeWise™ technology. That means you get an amazingly clear presentation that's a dead ringer for your computer screen. Just a whole lot bigger. And at less than 15 pounds, it's as easy to carry as it is to set up and use.

For more information on our award-winning line of projectors and a free video, dial 1-800-442-1977 and ask for Operator 3028. Or visit us at www.epson.com

EPSON is a registered trademark of Seiko Epson Corp. PowerLite and SizeWise are trademarks of Epson America, Inc. ©1997 Epson America, Inc.

PowerKey Pro 600

POWER STRIP FOR GADGET FREAKS

THE POWERKEY PRO 600 SPORTS six outlets that can be controlled in seemingly infinite ways. You can program this supercharged power strip's outlets to activate when it encounters keyboard activity or events on your Mac, an incoming telephone call, or predefined times or dates. Not since the debut of the Newton has there been a product so exciting to the gadget freak.

The original PowerKey (which Sophisticated Circuits still sells) offers a clever surge-suppressing box with four outlets that let you turn on (and shut off) your entire system (monitor, printer, modem, Mac) via your keyboard's power key. The Pro version's elegant, well-conceived software lets you go far beyond those useful features. A thorough manual walks you through rigging the PowerKey to restart the Mac automatically after a crash, freeze, or power failure—perfect for file or Web servers. Unlike Apple's Energy Saver control panel, which darkens the screen but doesn't actually save electricity, the PowerKey Pro can turn your monitor off completely after a specified period of inactivity.

KEVIN CANDLAND

Because you can control outlets from your Mac's keyboard, it's easy to turn your printer or modem on or off without stirring from your chair. The PowerKey software can launch programs or trigger scripts (AppleScript or QuicKeys) at specified times, automating backups and e-mail dumps. If you use Apple Remote Access, the PowerKey can turn on your Mac when the phone rings, and respond to user-defined touch-tone codes to activate peripherals. You can even program the PowerKey to answer the phone only after business hours.

The software uses multiple-choice natural-language pop-up menus. A finished instruction might read: "When the phone rings 6 times, between 5:00 p.m. and 9:00 a.m., answer the phone. Start up the computer. When system is idle more than 20 minutes, shut down the system."

But computer-related uses pale in comparison with the possibilities of whole-*house* automation. Two quirks of the PowerKey Pro multiply its potential: your Mac doesn't even need to be turned on to use the timer- and telephone-based features; and you can chain multiple PowerKeys together. There's no reason you couldn't program your coffeemaker to start 15 minutes before your alarm clock rings; turn lamps on and off while you're away to fool burglars; and have your function keys turn on the stereo.

Macworld's Buying Advice The PowerKey Pro 600's sole peculiarity is that it doesn't offer surge protection, unlike the original PowerKey or the $99 PowerKey Pro 200 (which lacks on/off switches on the device itself, the automatic restart feature, and independent programming for each outlet). Still, few peripherals offer so many possibilities; Sophisticated Circuits has produced a functional, exciting, well-designed gadget.—DAVID POGUE

RATING: ★★★★/8.4 **PROS:** Flexible programming; excellent software and manual; attractive design. **CONS:** Doesn't offer surge protection. **COMPANY:** Sophisticated Circuits (206/485-7979, *www.sophisticated.com*). **LIST PRICE:** $199.

CameraMan 3.0

QUICKTIME MOVIES OF YOUR DESKTOP

MOTION WORKS GROUP'S CAMeraMan 3.0 does one thing very well: making QuickTime movies of what's taking place on the computer screen. You press a predefined keystroke, hear a tiny beep, and CameraMan records everything on your screen—menu movements, game action, Web animations, whatever. A second keystroke stops the recording and stores the finished QuickTime movie on your hard drive. Even if that were all CameraMan did, it would still be worth its low price. Fortunately, the program is filled with flexible features to help you grab exactly what you want.

For example, the program can make a movie of your entire screen; if you know QuickTime, though, you know that big frame sizes mean jerky playback. Therefore, CameraMan offers three smaller-frame options for smoother playback: you can designate a fixed recording area; CameraMan can move its "camera" to track mouse movement; or the "camera" can stay still until your cursor moves out of the frame, and then smoothly pan to the new location. This option creates professional-looking movies.

Lights, Action, CameraMan CameraMan's options let you specify the file format, the frame rate, and screen area to capture in your desktop movie.

CameraMan can generate effective little sounds that mimic and correspond to the key-taps and mouse-clicks you make during filming. You can also add a soundtrack from your microphone or CD player during filming—great for narrations.

CameraMan 3.0's new features include multiple-monitor recording and native PowerPC code for added speed and smoother movies. A bonus editing program, QuickEdit, offers a new timeline that shows each video and audio track as a separate chunk you can slide, shorten, cut, copy, or paste.

Above all, though, CameraMan 3.0 offers enhanced compatibility. Anyone who's used an earlier version of CameraMan (or one of its now-defunct competitors, such as Strata's Instant Replay) knows that incompatibilities with various Mac models and system versions come with the territory; after all, you're asking the Mac to record its own activity. Most known problems have been solved in version 3, but not all: the excellent manual warns that you can't record in the PowerPC versions of Photoshop and Illustrator; the cursor will be missing from movies made on Power Macs with System 7.5.2 or 7.5.3; and 11 extensions—including PC Exchange, AutoDoubler, and Timbuktu—will foul up CameraMan.

Macworld's Buying Advice Not many people need CameraMan, but those who do—such as the producers of CD-ROMs, interactive training, and online help files—*really* need it. Considering that its only competition is now defunct, you might think the creators of CameraMan would be content to sit on their version 2.0 laurels. Fortunately, they haven't.—DAVID POGUE

RATING: ★★★★/7.4 **PROS:** Smoothly captures small areas of screen activity, with sounds; richly featured; inexpensive. **CONS:** Long list of incompatible software. **COMPANY:** Motion Works Group (604/685-9975, *www.mwg.com*). **LIST PRICE:** $69.95.

File Edit View Label Special

9 control panels were put into the Control Panels folder.
23 extensions were put into the Extensions folder.
120 items were put in places you'll never find.
OK

Where did all this junk come from?!

Spring Cleaning handles those housekeeping chores that keep your Mac from operating at its best. Uninstall old software in one step. (Spring Cleaning will track down those pesky little files that installers scatter around your hard disk.) Eliminate unwanted folders. Clean out that Preferences folder. Reattach orphan files. Eight essential utilities *clean you up to speed you up*. See us on the Web at **aladdinsys.com**, call **(800) 732-8881** or visit your favorite reseller.

Aladdin Systems

©1997 Aladdin Systems, Inc.

(800) 732-8881 www.aladdinsys.com

Circle 22 on reader service card

www.macworld.com/buyers/shframed.htm

Mac shopper

Want bargains online?

Bookmark the Mac Shopper at:

Macworld Online

Contact Macworld on how to advertise. (800) 888-8622

XCLAIM VR
— it's five on the floor plus a whole lot more from ATI

Supercharged 3D acceleration.

Big screen TV output. Now anything you display on your computer can be output to your TV, even recorded to video tape.

Bigger, brighter and faster graphics no compromise 2D performance in true color up to 1152x870.

Video capture lets you grab images and video from your VCR, camcorder and laserdisc so you can add multimedia to any project.

Full-screen, TV-quality QuickTime playback.

Finally, a product that lends more muscle to your PCI Mac. ATI's XCLAIM VR. It's five must-have graphics and multimedia functions revved up into one complete solution, giving you the power to conquer it all. Play, create, view, display or output 3D, 2D and video. This is full-out 3D acceleration, heart-stopping graphics performance, high-gear video playback, MAC2TV capabilities and more for just $269*. See your dealer today, check out **www.atitech.com,** or call us at (905) 882-2600 (press 2 for faxback).

© ATI Technologies Inc., 1997. ATI, Xclaim VR and Now You See It are trademarks and/or registered trademarks of ATI Technologies Inc. All other product names are trademarks and/or registered trademarks of their respective owners. *Suggested ($U.S) retail price for 2MB upgradeable version.

COMPUTER City 1-800-The City

CDW 1-800-363-4239

MICRO CENTER

MacWAREHOUSE 1-800-255-6227

Circle 256 on reader service card

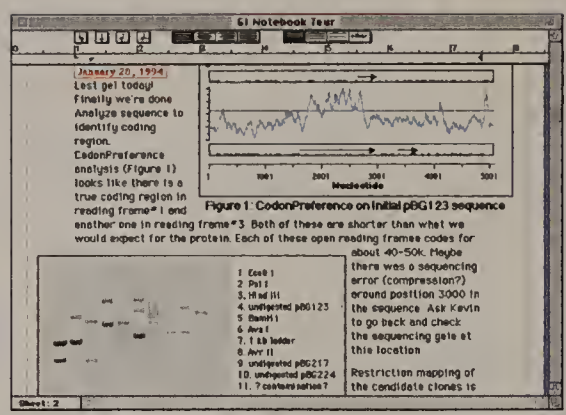
Now You See It.™

Gene Inspector

A DNA LAB ON YOUR MAC

ONE OF THE BIG REASONS THE Mac became the preferred desktop system for molecular biology is that it offered first-rate programs like Textco's Gene Construction Kit. The latest product from Textco, Gene Inspector 1.0, gives biotech firms and universities yet another reason to hang on to their Macs. This comprehensive and intuitive program is a virtual lab notebook for organizing sequence data and follow-on analyses. Because it doesn't require users to change their old paper-notebook habits, anyone familiar with sequencing can use it with no training.

Gene Inspector features more than 60 standard analyses for both nucleic acids and peptides: multiple sequence alignments, consensus sequences identified for match correctness with shading intensity, dot matrix plots, display of open reading frames in nucleic acid sequences, and prediction of the physical properties of translation-product peptides. That's a lot of molecular biology packed into a single, moderately priced program, and it's all presented in an interface that's nearly self-explanatory.



Lab on a Disk Gel scans, graphs, sequences, and every other element of molecular-biology lab work fit neatly into the Gene Inspector notebook.

But the most important advance over earlier software, from Textco or its competitors, is that you can hot-link data and analyses by defining a set of analyses, grouping them, and dynamically linking them to the original data set. Gene Inspector refines or extends a sequence when you enter the results of further experiments, then automatically updates all the linked analyses. After a quick initial setup, Gene Inspector's notebook links help you produce a research-publication first draft with graphs and appendixes faster than you can read a sequence from a gel.

Textco also gave considerable thought to what *not* to include; one example is sequence directories with specialized search engines, a popular combination a few years ago but of questionable value now, given the current pace of sequencing and the rise of the Web. Also left out is PCR (polymerase chain reaction) analysis software for designing primers, something most users won't need. For contiguous sequence assembly, try Sequencher from Gene Codes (313/769-7249, *www.genecodes.com*).

Macworld's Buying Advice Gene Inspector is one of the best pieces of science software ever released, and it's available exclusively for the Mac. It may seem expensive, but compared with the cost of lost data—or the cost in hours and reagents to acquire more data—it's a reasonable price to pay for the convenience of having all your data and analyses, along with superior graphing capabilities, in a single package. A rich set of notebook features and careful selection of analysis modes make Gene Inspector an essential component of any molecular-biology lab.—CHARLES SEITER

RATING: ★★★★/8.2 **PROS:** Powerful; easy to learn; uniquely effective notebook format. **CONS:** Missing a few features. **COMPANY:** Textco (603/643-1471, *www.textco.com*). **LIST PRICE:** $2599; academic price $1899.

Obsidian

VOLCANIC ROCK IS SOLID GOLD

THEY SAY THAT BEFORE A SWAN dies, it sings a song of great beauty and power. I don't know if it's true of these elegant birds, but it seems to be the case with the ailing Rocket Science Games. Obsidian, a Myst-like puzzle game developed by Rocket Science and distributed by SegaSoft, transcends many of the faults of its genre to achieve a level of integration that's purely delightful.

Many hard-core gamers avoid puzzle games because of their heavy reliance on prolonged full-motion video (FMV) sequences. The general feeling is something like watching a movie with a broken VCR—you have to push buttons and fix the tracking, and in the end you discover the video wasn't worth watching in the first place. Obsidian's creators, though, have done an excellent job of balancing game play, graphics, and story line, setting a new standard for puzzle and FMV games.

The story line is familiar: man creates machine, machine attains consciousness, humanity has problem. In this case, the machine explores its newfound sentience step-by-step, incrementally taking the player into new dimensions of its mind. From exploring a bizarre and elaborate bureaucracy to plumbing the depths of the machine's quest for true creativity, each world is beautiful and surreal.

The Burning Question Obsidian's bizarre, surreal world leaves you wondering where you are and how you got there.

Despite themes that run throughout the game, each new location pushes the envelope of the possible and expands on the story line. Far from simple video, the movie sequences are essential to game play and never overpower the other elements.

The core of Obsidian's game play is the puzzle itself. To advance, you must use your own cleverness to work through each of the machine's developing neuroses. Unraveling each puzzle not only lets you advance to the next, but also provides a clue to your ultimate goal—a refreshing change from games where puzzles seem to be free-floating entities. You find yourself looking forward to each new challenge and the secrets it will reveal, even as you search for its solution.

In most games, sound merely sets the stage. Obsidian's soundtrack—composed by Thomas Dolby and HeadSpace—moves to the foreground, playing an important role in several puzzles. Tone-deaf players won't be left in the dust, but sound is very much a part of the Obsidian world.

Obsidian's sole disappointment is its interface. With so many interesting elements, it's unfortunate that no improvements were made to the tired "click-on-the-glowing-thing" interface typical of puzzle games.

Macworld's Buying Advice Obsidian is to the puzzle genre what Zork was to text games. If you're a puzzle fanatic, like an intellectual challenge, or simply want to broaden your game-play options, Obsidian is an excellent choice. In what may be one of Rocket Science's final products, it's struck gold.—DANIEL MADAR

RATING: ★★★★/7.0 **PROS:** Challenging puzzles; delicately constructed, engrossing story line. **CONS:** Typically bland puzzle-game interface. **COMPANY:** Rocket Science Games/SegaSoft (888/734-2763, *www.segasoft.com*). **COMPANY'S ESTIMATED PRICE:** $39.99

NEW ADOBE® ILLUSTRATOR® 7.0 for MACINTOSH®

NO JOB TOO BIG. NO JOB TOO SMALL.

SEAMLESS INTEGRATION

Works seamlessly with Adobe Photoshop® and PageMaker® like no other illustration software. Learn faster, work faster–same user interface, including shortcuts and menus. Even drag & drop between all three.

WINDOWS AND MACINTOSH, SAME GREAT FEATURES.

It's never been easier to share files with colleagues, clients and service bureaus.

PRECISION CONTROL

Create, transform and align artwork and type exactly the way you want. Adjustable guides, grids and "snap-to" make layout design easier. Unique tools let you wrap type around objects and run type on a path.

UNMATCHED COMPATIBILITY

Support for more than 20 image, graphics and text formats, including TIFF, WMF, CDR, PhotoCD™, GIF89a, MS® Word.

CALL NOW FOR YOUR
$99 UPGRADE
NEW ADOBE ILLUSTRATOR 7.0 FOR MACINTOSH.
LIMITED TIME OFFER

Now there's a way to expand your creative tools on any size job. Adobe Illustrator 7.0. Organize your workspace any way you like with new tabbed palettes, just like the ones in Adobe Photoshop. See how productive you can be by choosing colors with a simple drag-and-drop. Speedy image handling and the ability to link images in virtually any format lets you work faster, with smaller files. And if it's flexibility you're after, Adobe Illustrator 7.0 delivers! Great new features include vertical text, easy multiple master font control, adjustable grids, and support for professional color management systems. Even Web jobs are easier, thanks to RGB color support, URL embedding, and built-in Web-ready color palettes. For more details, call 800-649-3875, extension 31909. Or visit our Web site at www.adobe.com/prodindex/illustrator.

Adobe®

If you can *dream* it, you can *do* it.®

Created with Adobe Illustrator, Photoshop and Dimensions, and Goudy and Helvetica fonts. Adobe, the Adobe logo, Adobe Illustrator, Photoshop, PageMaker, PostScript and "If you can dream it, you can do it." are trademarks of Adobe Systems Incorporated. Window and MS are either registered trademarks or trademarks of Microsoft Corporation. PhotoCD is a trademark of Eastman Kodak Co. All other trademarks are the property of their respective owners. Offer ends 9/1/97. © 1997 Adobe Systems Incorporated. All rights reserved.

Circle 252 on reader service card **See Us At The Macworld Expo Booth#5434**

Duke Nukem 3D

DEGRADING CONTENT TAINTS HOT GAME

A PERENNIAL FAVORITE ON THE PC platform, Duke Nukem 3D: Atomic Edition is finally available for the Macintosh. It's an action-packed, first-person shoot-'em-up game with a sense of humor. Too bad that sense of humor belongs to a 14-year-old with a taste for splatter films and girlie magazines. Within the game you become Duke Nukem, a one-man army out to save Earth from an alien invasion.

Duke doesn't wimp out when it comes to devastating weaponry. Falling squarely into the Gratuitously Violent Weapons category is the Microwave Expander, which provides a working demonstration of why you shouldn't put living creatures in microwave ovens. Alas, the same loving care used to craft such evil weapons wasn't applied to the creation of Duke's enemies. Higher-level aliens look otherworldly, but low-level troops resemble anthropomorphized tigers and pigs. Overall, the aliens' appearance and movement is disappointingly blocky and crude.

Fortunately, the same criticism can't be made of the worlds that Duke strides through. There are some weaknesses—the alien installations feel like James Bond movies—but the game's apocalyptic urban interior decor is very convincing.

Blow 'Em Away Duke Nukem offers you a little skin with your blood and guts.

Futhermore, Duke Nukem's creators deserve extra credit for their visual and sonic flourishes. The game is peppered with moving lights, animated signs and television screens, roaring creatures, and lots of fire. Although its puzzles aren't particularly challenging, the game's worlds are entertainingly interactive, filled with hidden nooks and crannies.

Duke's environment is also loaded with sight gags. Mirrors can reveal enemies lying in wait, but Duke can also check out his good looks. In bathrooms, the toilets work . . . and Duke can use 'em. Plus, Duke delivers hilarious Eastwood-esque commentary.

But there's an ugly devil hiding in the details. Switch on Adult Content mode (there's a password for parents), and Duke takes video-game violence to new depths, tossing in cheap, degrading sex while you're down there. In just one scene—set in an adult bookstore, no less—you can splash an alien's guts on the wall, walk over his corpse leaving bloody boot-prints, *and* check out a film loop of a woman rubbing her face against an apparently naked body. Interact with one of the many bikini-clad dancers scattered throughout the game, and Duke offers a wad of bills, asking, "Wanna dance, baby?" If you step back and pull the trigger, the girl explodes in a shower of money.

Macworld's Buying Advice As an action game, Duke Nukem is pure rock and roll, but its extreme violence and degrading content make it hard to recommend wholeheartedly. I had fun playing Duke—I just wanted to take a shower when I was done.—CAMERON CROTTY

RATING: ★★★★/7.0 **PROS:** Loud, fast action; humorous. **CONS:** Excessive violence; degrading suggestive content; disappointing enemies. **COMPANY:** MacSoft (612/559-5140, *www.wizworks.com*). **COMPANY'S ESTIMATED PRICE:** $49.95.

The Louvre Museum

ART APPRECIATION CD-ROM GEARED TO THE YOUNGER GENERATION

IF YOU WANT TO INSPIRE YOUR kids' love of fine art, you could fly them to Paris to tour the Louvre, one of the largest, most famous museums in the world. Of course, you'd have to battle crowds of tourists; long lines for the most celebrated works of art; and the usual specters of exhaustion, hunger, and whining that accompany travel with children. For a cheaper option, check out Voyager's The Louvre Museum, a CD-ROM of more than 150 paintings, sculptures, and other artworks.

Each piece of art appears in the center of your screen, surrounded by icons. The works span a wide variety of eras and genres, including a knife created around 3300 B.C., furniture built in the 1400s, and paintings from the eighteenth century. The CD—part of the Museums of the World series—includes some of the Louvre's most famous pieces, such as the *Mona Lisa*, and some that are decidedly obscure.

Each piece is accompanied by an audio clip: sometimes serious, sometimes lighthearted (see "If These Walls Could Talk").

If These Walls Could Talk Speculating on the girls' dialogue, the audio clip accompanying Sir Thomas Lawrence's portrait *The Angerstein Children* chimes, "How big am I? So big!"

For more information on the work, you can click on the book icon, which brings up a brief text that explains some of the artwork's history, plus questions to ponder as you look at the picture.

Clicking on the magnifying glass lets you look at a full-screen image of the work, and clicking on hot spots within each picture brings you even closer—a great way to get a look at fine details that you might not be able to see even if you were viewing the piece in the Louvre itself.

You can peruse artwork randomly by clicking on the frog icon (and jumping to a different picture), or geographically, by choosing the globe icon and selecting a country from the map that appears. As you click on a country, its native works of art are displayed as thumbnails; clicking on an image brings up the full-screen picture. You can also view art by time period, by selecting the clock icon. A timeline appears, and clicking on any portion of it shows you the selection of art from that era.

Of course, no kid-centered CD-ROM would be complete without a game or two, and The Louvre Museum includes five. Clicking on the cube icon brings up puzzles, such as finding a detail or spotting an out-of-place addition in each piece of art. The games encourage you to look more closely at the picture, although none are complex or exciting.

Macworld's Buying Advice The Louvre Museum's best asset is its ability to give kids insight into what they're seeing when they look at artwork. It's a great way to introduce them to some fantastic art, and a lot cheaper than a trip to Paris.—WENDY SHARP

RATING: ★★★★/7.3 **PROS:** Great close-ups of key works of art; fun kid-oriented information. **CONS:** Uninspired games. **COMPANY:** The Voyager Company (800/446-2001, *www.voyagerco.com*). **LIST PRICE:** $39.95.

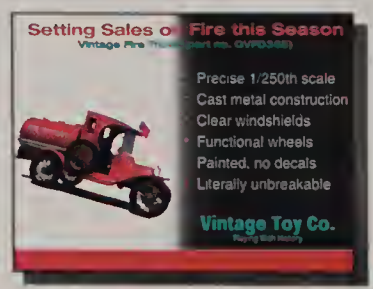
SONY

Imagine That. On a Floppy™

Now add digital images to your work... fast

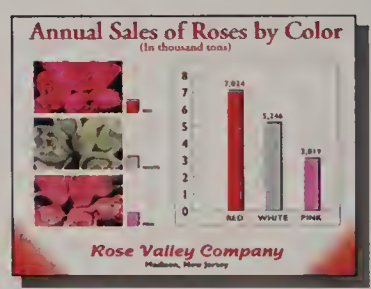
Introducing Digital Mavica®.

The World's First 3.5" Floppy Disk Digital Camera



Presentations

Documents/ Publications



Databases/ Spreadsheets

From internal newsletters to company reports, wherever there's a story to tell, you can tell it better with pictures taken with a Sony Digital Mavica.

Digital Mavica is compatible[2] with Windows® 3.1/Windows® 95/ Windows NT® 4.0 or Mac™ OS System 7.5.

SONY

asy, like never before!

SHOOT!

Point and shoot!

With Sony's new Digital Mavica® Still Camera, adding pictures and images to make professional looking documents has never been easier. Digital Mavica records on a standard computer floppy so you can play it back on virtually any PC. No more hassles with cables, interfaces or drivers.

Finally, a Digital Still Camera with Real Camera Features like a 10x power zoom lens with 1" macro capabilities and auto-focus, auto-white balance and auto-iris for proper exposure

10-to-1 ZOOM LENS

and a built-in flash and self-timer. Five Camera Mode Settings allow control of prevailing light conditions:

- Portrait • Landscape
- Beach and Ski • Sports
- Sunset and Moon

STORE!

A single disk can store up to 40 images!

Never miss a shot! Sony's InfoLithium™ Rechargeable Battery allows up to 500 continuous shots[1] with a single charge as it powers a large 2.5" color LCD screen for composing, monitoring and playback.

Digital Mavica is compatible with virtually any PC. It uses universally compatible high density 3.5" standard computer floppies that can hold up to 20 high resolution or up to 40 standard resolution images in 24 bit color, 640 x 480 (VGA) JPEG format.

Slip the floppy into a PC and watch the work come alive. Digital Mavica is compatible[2] with Windows®3.1/Windows® 95 /Windows NT®4.0 or Mac™ OS System 7.5. Add images to your spreadsheets, newsletters, Websites or any popular imaging software. Digital Mavica also comes with ArcSoft PhotoStudio for creative options to manipulate images, add text and change backgrounds.

If you can picture it on a floppy, you can see it in your work!

MICROSOFT® WINDOWS™ COMPATIBLE 32-Bit Application

Mac™OS

ARCSOFT PhotoStudio®

SHOW!

Watch your work come alive!

Digital Mavica®

Imagine That. On a Floppy.™

www.sony.com/mavica

Digital Mavica®

	MVC-FD5	MVC-FD7
CAMERA		
Imaging Devices	1/4" CCD w/ 380K pixels	1/4" CCD w/ 380K pixels
Program Auto Exposure	Auto only	Auto/5 Mode Setting
Exposure/Iris Control - ISO Rating	100	100
Exposure Compensation (EV)	7 Steps	7 Steps
White Balance	Auto	Auto
Shutter Speed	1/60-1/4000	1/60-1/4000
Recording Mode	Up to 20 shots Fine/up to 40 shots Standard	20 shots Fine/40 shots Standard
Picture Effects		4 (Monotone, Sepia, Negative, Pastel)
Flash	Built-in	Built-in
Self Timer	10 sec(on/off)	10 sec(on/off)
Lens	Fixed f=4.8, F=2.0 [3]	10:1 Zoom f=4.2-42mm ,F=1.8 - 2.9 [3]
35mm Conversion	f=47mm	f=40–400mm
Focusing	Fixed	Auto/Manual focus dial
PLAYBACK		
Format	JPEG	JPEG
Recording Media	3.5" floppy disk 2HD only [4]	3.5" floppy disk 2HD only [4]
Image Size	640x480 (VGA)	640x480 (VGA)
LCD	2.5" 61K pixels	2.5" 61K pixels
LCD Brightness	Yes (+/-)	Yes (+/-)
Delete Picture	Yes (All/Select)	Yes (All/Select)
Index Viewing	6 Picture Display on LCD	6 Picture Display on LCD
Time Stamp	Yes (Date/Time)	Yes (Date/Time)
Menu	Yes	Yes
GENERAL SPECS		
Battery	InfoLithium NP-F530	InfoLithium NP-F530
Dimension (WxHxD)	5"x4.5"x2.5"	5"x4.5"x3"
Weight	1.1 lbs	1.3 lbs
Power Requirements	DC 7.2V	DC 7.2V
SUPPLIED ACCESSORIES		
Rechargeable Battery	NP-F530	NP-F530
Hand Strap	Yes	Yes
Battery Charger	BC-V615	BC-V615
PhotoStudio from ArcSoft	Bundled	Bundled
Back up Memory Battery	CR-2025	CR-2025
OPTIONAL ACCESSORIES		
Wide Angle Lens		VCL-ES06 (MVC-FD7 only)
Telephoto		VCL-ES20 (MVC-FD7 only)
Soft Carrying Case	LCS-FDC	LCS-FDC
Cleaning Kit	KK-LC3	KK-LC3

VCL-ES20

VCL-ES06

LCS-FDC

KK-LC3

© 1997 Sony Electronics Inc. Reproduction in whole or in part without written permission is prohibited. All rights reserved. Sony, Mavica, Imagine That. On a Floppy. and Shoot! Store! Show! are trademarks of Sony. Microsoft, PowerPoint, Excel and Windows are trademarks of Microsoft Corporation. Mac OS is a trademark of Apple Computer.

1. Continuous recording (10-second intervals with flash off) 2. Some systems may require supplied ArcSoft™ software
3. Filter diameter-special 4. MS-DOS formatted

SONY

Sony Electronics, Inc.
1 Sony Drive
Park Ridge, NJ 07656
www.sony.com/mavica

digital DREAM Digital Dream Kids

C8427

Four picture effects allow for special creative techniques:

Monotone

Sepia

Negative Art

Pastel

Star Ratings

HARDWARE AND SOFTWARE PRODUCTS AT A GLANCE

Macworld's Star Ratings let you compare Macintosh products based on the authoritative assessments in our reviews and features.

What the Scores Mean The number of stars indicates the product's level of quality; each product also gets a numeric score that provides a more exact assessment of the product's quality within that level. The chart below shows the meaning for each level.

We evaluate seven factors to derive the Star Rating: feature set, design implementation, performance, reliability, ease of use, innovation, and value. We take these evaluations, weight their importance for each class of product, and calculate the final score. The higher the score, the better a product is, even among products with the same number of stars.

Editors' Choice This section also lists products that have been awarded an Editors' Choice designation in a *Macworld* product comparison. That designation indicates a best-of-class product for a particular need.

Ratings Online The ratings listed here are of recently reviewed products in select categories. For a complete, searchable list, go to Macworld Online, at *http://www.macworld.com/pages/star/ratings.html*.

Full Reviews To read a full review of any product in the listing, please consult the issue indicated at the end of the listing or search for the product via Macworld Online (keyword *Macworld* on America Online; URL *http://www.macworld.com* on the World Wide Web). If a product has been upgraded since our last assessment, the most recent version number appears in parentheses after the main reviewed version number.

Vendors: Please write to Macworld Star Ratings, 501 Second St., San Francisco, CA 94107, to inform us of changes in the version number or list price of your product, or of changes to your phone number.

Software

BUSINESS

★★★★/8.1 **4th Dimension 6.0,** ACI US, 408/252-4444, $299. Classic relational database does Windows and the Web. *Aug 97, p. 62*

★★/4.2 **Ascend 4.0,** Franklin Quest, 801/975-1176, $99.95. Information manager isn't competitive with other PIMs. *Apr 97, p. 72*

★★/3.8 **ePaper 1.5,** Second Glance Software, 360/692-3694, $169. Offers some markup tools, but if you're serious about OCR, invest in a dedicated package. *Jun 97, p. 64*

★★/3.8 **FormTyper 1.0,** Visioneer, 510/608-0300, $19.95. Forms software is cheap and easy to use, but it's too underpowered. *Aug 97, p. 54*

★★★★/7.3 **Informed Designer 2.0,** Shana, 403/433-3690, $295. If you're serious about forms, this feature-rich designer can't be beat. *Aug 97, p. 54*

★★★★/8.5 **MYOB Accounting 7,** BestWare, 201/586-2200, $89.95 to $139.95. Entry-level accounting package combines ease of use and power. *May 97, p. 69*

★★★★/8.6 **Now Contact and Up-to-Date 3.6.5,** Now Software, 503/274-2800, $99.95. Personal info-management duo gets connected to the Net. *Jun 97, p. 70*

★★★/5.7 **OmniForm 2.0,** Caere, 408/395-7000, $149. Accurate but quirky program is handy if you need to scan existing forms. *Aug 97, p. 54*

★★★★/7.6 **PowerBuilder 5.0,** PowerSoft, 508/287-1500, $2995. Key cross-platform database tool puts Mac's SQL skills on par with Unix and NT. *Apr 97, p. 70*

★★★★/7.4 **Scripter 2.0,** Main Event Software, 202/298-9595, $199. Easy way to make CGIs work on a Mac-based Web site. *Apr 97, p. 74*

★★★★/7.8 **Spreadsheet 2000 2.01,** Casady & Greene, 408/484-9228, $110. This LKISS successor is ready for business. *Jul 97, p. 68*

★★★/5.0 **ViewOffice PowerSuite,** NewSoft, 510/445-8600, $79. Inexpensive scanning with solid image-editing tools but unimpressive OCR features. *Jun 97, p. 64*

GRAPHICS

★★/4.8 **3D WalkAround 1.0,** Abracadata, 541/342-3030, $99.99. Unsuitable for architectural projects, but fine for simple interior space planning. *Jun 97, p. 81*

★★★★/7.0 **ColorWeb 1.0,** Pantone, 201/935-5500, $29.95. Simple, inexpensive color picker and swatch book move to the Web. *May 97, p. 84*

★★★/6.3 **DesignWorkshop 1.5,** Artifice, 541/345-7421, $595. Low-end modeler offers excellent modeling tools. *Apr 97, p. 74*

★★★★/8.1 **Extreme 3D 2.0,** Macromedia, 415/252-2000, $399. Great 3-D design program for print, animation, Web, and multimedia. *Apr 97, p. 70*

★★★★/7.9 **Eye Candy 3.0,** Alien Skin Software, 919/832-4124, $199. Eye-catching Photoshop filters, and lots of 'em. *Aug 97, p. 58*

★★★★/7.2 **Illustrator 7.0,** Adobe Systems, 415/961-4400, $595. Slight upgrade marks a new beginning for venerable graphics app. *Aug 97, p. 46*

★★★★/7.8 **PhotoTools 1.1,** Extensis, 503/274-2020, $99.95. Polished collection of Photoshop filters includes a great text plug-in. *Aug 97, p. 58*

★★★★/7.0 **Texture Creator 2.0,** Three D Graphics, 310/553-3313, $129.99. Pro-level features in a beginner's package. *Aug 97, p. 76*

★★★/6.4 **Virtual Home Space Builder 2.0.4,** ParaGraph, 408/364-7700, $49. VRML 2.0 authoring program has limited modeling features. *Aug 97, p. 68*

★★★★/7.5 **WalkThrough Pro 2.6,** Virtus, 919/467-9700, $495. Best choice to quickly and elegantly create an architectural walk-through. *Jun 97, p. 81*

INTERNET/NETWORKING

★★★/6.9 **Apple VideoPhone Kit 1.5,** Apple Computer, 408/996-1010, $279. Camera/software combo offers good, basic videoconferencing. *Aug 97, p. 56*

★★★★/8.2 **Claris Emailer 2.0,** Claris, 408/727-8227, $49. E-mail innovator gets a face-lift and speed boost. *Jul 97, p. 52*

★★★★/7.0 **Claris Home Page 2.0,** Claris, 408/727-8227, $99. Web authoring tool is great for building small to medium-size sites. *May 97, p. 56*

★★★/5.1 **CometPage 1.0.5,** Digital Comet, 415/331-5551, $149. Makes it easier to create dynamic Web pages—as long as you're comfortable working with HTML. *Jul 97, p. 70*

★★★★/8.1 **CommuniGate 2.8,** Stalker Software, 415/383-7164, free (5 users) up to $600 (200 users). Fast, reliable multimedia messaging suite adds new features. *Jun 97, p. 86*

★★★/5.7 **Connectix VideoPhone 2.01,** Connectix, 415/571-5100, $99. May be a good solution for high-speed networks without existing bugs. *Aug 97, p. 56*

★★★★/8.1 **CyberStudio 1.0,** GoLive Systems, 415/463-1580, $349. Excellent user interface and precise controls; a near-perfect application. *Aug 97, p. 104.* **Editors' Choice** for best Web publishing tool for small-business sites.

★★★★/7.3 **Dave 1.0,** Thursby Software Systems, 817/478-5070, $179. Painless Mac file sharing on Windows networks. *May 97, p. 72*

continues

REAL PRODUCTS REAL RATINGS Reviews you can trust: Unlike other publications, Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.
Outstanding ★★★★★ = 9.0–10.0 Very Good ★★★★ = 7.0–8.9 Good ★★★ = 5.0–6.9 Flawed ★★ = 3.0–4.9 Unacceptable ★ = 0–2.9

Time for a Mac Brew

CD-Speedster™

DO IT FASTER! CD-Speedster increases your cache flow. Cached data is always accessed from the fastest available source so you get data faster and your CD searches sizzle.

syncronys softcorp ™

RAM Charger 3.0™

DO MORE! RAM Charger adds dynamic RAM management to your Mac OS so it pumps every System 7.x Mac to run even more RAM-hungry applications.

Burn-It!™

DO IT SAFER! Burn-It! destroys data you select with a simple drag and drop by wiping the underlying sectors clean with repeated writes of random data. Now your data is really dead!

for more information call **1.888.777.5600**

Syncronys Softcorp

s y n c r o n y z i n g

man and machine

www.syncronys.com

©1997 Syncronys Softcorp. All rights reserved. Syncronys, the Syncronys logo, Burn-It!, RAM Charger 3.0 and CD-Speedster are all registered trademarks of Syncronys Softcorp.

Circle 55 on reader service card

Star Ratings

★★★/6.4 **Enhanced CU-SeeMe 2.0**, White Pine Software, 408/446-1919, $69. Color-capable version has good low-bandwidth videoconferencing, but unimpressive audio. *Aug 97, p. 56*

★★/4.8 **FrontPage 1.0**, Microsoft, 206/882-8080, $149. Helpful automation, peculiar interface, exorbitant hardware demands. *Aug 97, p. 104*

★★/4.1 **Globetrotter Web Publisher 1.1.1**, Akimbo Systems, 510/843-6888, $99. Intriguing automated functions, but murky design and documentation. *Aug 97, p. 104*

★★★★/7.0 **Home Page 2.0**, Claris, 408/727-8227, $99. Slightly more features than PageMill but occasional preview lapses. *Aug 97, p. 104*

★★/4.2 **HoTMetaL Pro 3.0**, SoftQuad, 416/544-9000, $159. HTML tags and image previews provide little meaningful feedback. *Aug 97, p. 104*

★★/4.9 **Insta.html 1.0**, Trailer Parc Technologies, 415/248-1350, $179. Overpriced plug-in has trouble with FreeHand-to-Web conversion. *May 97, p. 82*

★★★★/7.5 **Internet Gateway 3.7.3**, Vicom Technology, 415/691-9520, $249 to $750. Network router software offers speedy Internet connections. *Jul 97, p. 70*

★★★★/7.8 **NetMinder 4.0.2**, Neon Software, 510/283-9771, $795. Network analyzer makes monitoring and problem diagnosis easy. *Aug 97, p. 78*

★★★★/7.1 **NetObjects Fusion 1.0**, NetObjects, 415/482-3200, $695. Delivers precise positioning of Web page elements; no spelling checker. *May 97, p. 60*

★★★★/7.4 **PageMill 2.0**, Adobe Systems, 408/536-6000, $149. A straightforward approach with first-rate previewing capabilities. *Aug 97, p. 104.* **Editors' Choice** for best Web publishing tool for personal sites.

★★★/6.9 **Phantom 2.0**, Maxum Development, 630/830-1113, $395. Web crawler lets you build your own search pages. *Jul 97, p. 78*

★★★/5.4 **Presto Personal Page 2.5**, NewSoft, 510/445-8600, $49.99. Modest features with average implementation, but easy to use. *Aug 97, p. 104*

★★/3.6 **QuickSite 1.0**, DeltaPoint, 408/648-4000, $99.95. Automatically generates entire sites at a time, but feature set is tiny. *Aug 97, p. 104*

★★★★/7.5 **RunShare 2.1**, RUN, 201/529-4600, $399 (2 users) up to $2499 (25 users). AppleTalk network tool revs up file transfers by 250 to 400 percent. *Jun 97, p. 86*

★★★★/7.2 **Visual Cafe 1.0**, Symantec, 541/334-6054, $199.95. Faster, easier Java coding, great for creating applets from scratch. *May 97, p. 67*

★★★★/7.2 **Visual Page 1.0**, Symantec, 541/334-6054, $99.95. Resembles PageMill, but has less-convenient access to key features. *Aug 97, p. 104*

★★/3.5 **WebWatcher 4.1.1**, Caravelle, 613/225-1172, $295 to $999. Web-site monitor doesn't live up to its name. *Aug 97, p. 72*

MEDIA

★★★/6.2 **Acrobat 3.0**, Adobe Systems, 408/536-6000, $295 to $1595. New features still limit use of this portable document program. *Apr 97, p. 52*

★★★★/8.5 **Aurorix 2.0**, DigiEffects, 415/841-9901, $289. From aged film to earthquakes, Aurorix's 26 usable effects are creatively designed. *May 97, p. 118.* **Editors' Choice** for best After Effects plug-ins.

★★★★/8.1 **Berserk 1.3**, DigiEffects, 415/841-9901, $289. This After Effects plug-in has great fog, blizzard, laser, and star-field effects. *May 97, p. 118.* **Editors' Choice** for best After Effects plug-ins.

★★★★/7.7 **Boris Effects 2.1 MP**, Artel Software, 617/451-9900, $350 to $695. Best Adobe Premiere and Media 100 plug-in; adds motion graphics, keying, and transition effects. *May 97, p. 118.* **Editors' Choice** for best Premiere and Media 100 plug-ins.

★★/3.7 **CD Speedster**, Syncronys Softcorp, 213/340-4100, $29.95. Provides modest CD acceleration, but only in limited cases. *Jul 97, p. 58*

★★★★/7.5 **Cyclonist 1.0**, DigiEffects, 415/841-9901, $495. This particle-generation specialist is a complex After Effects plug-in. *May 97, p. 118*

★/1.5 **d-Time**, Acceleration Software, 206/224-3727, $59.95. This CD-ROM accelerator is disappointing across the board. *Jul 97, p. 58*

★★★/6.4 **Dynamic Effects 1.0**, Gryphon Software, 619/536-8815, $119. A solid but uninspiring filter plug-in collection for Adobe Premiere. *May 97, p. 118*

★★★★/8.3 **Final Effects AP 1.0**, MetaTools, 805/566-6200, $199. Ideal for Adobe Premiere-based particle generation and distortion. *May 97, p. 118*

★★★★/8.2 **HoloDozo 1.0**, M.M.M. Software, *holodozo@mmmsoft.com*, $149. Novel Adobe Premiere plug-in has a clever interface, uses QuickDraw 3D. *May 97, p. 118*

★★★★/8.9 **KPT Final Effects 3.0.1**, MetaTools, 805/566-6200, $695. This superb effects collection works with Adobe After Effects. *May 97, p. 118*

★★★★/8.9 **Lens Flare Pack 1.5**, Knoll Software, 415/453-2471, $129. This After Effects plug-in generates unmatched lens flare effects. *May 97, p. 118.* **Editors' Choice** for best After Effects plug-ins.

★★★/6.7 **LightWave 3D 5.0**, NewTek, 303/448-9700, $1495. Pro-level animation program lacks interface elegance. *May 97, p. 74*

★★★/5.4 **MovieTools 1.5**, McQ Productions, 415/348-1344, $195. Simple, precise QuickTime movie processing. *Apr 97, p. 72*

★★★/6.6 **Nisus Writer 5.0**, Nisus Software, 619/481-1477, $249. Renegade word processor is long on innovation, short on basics. *Apr 97, p. 56*

★★★/6.8 **PageMaker 6.5**, Adobe Systems, 408/536-6000, $895 (estimated). Even with a wealth of new features, still can't beat QuarkXPress. *May 97, p. 48*

★★★★/8.4 **Studio Effects 1.0**, MetaTools, 805/566-6200, $695. Adobe After Effects plug-ins include 3-D particle generator and great spotlight effects. *May 97, p. 118*

★★★★/7.0 **SuperCard 3.0**, Allegiant Technologies, 619/587-0500, $329 (estimated). Veteran authoring tool gets a cool Web plug-in; a few Web-related bugs. *May 97, p. 58*

★★★/6.4 **TransFX 1.0**, DigiEffects, 415/841-9901, $45. Inexpensive and fun transition collection for Adobe Premiere. *May 97, p. 118*

★★★★/7.5 **TypeCaster 2.0**, Xaos Tools, 415/538-7000, $199. 3-D text plug-in renders beautiful text that you can animate. *May 97, p. 118*

★★★/6.8 **Ultimatte for Macintosh 2.0**, Ultimatte, 818/993-8007, $1495. Complex, costly plug-in does an unmatched job of keying. *May 97, p. 118*

★★★/6.3 **UniQorn 1.2**, SoftPress Systems, 415/331-4820, $895. Easily turns print into Java-powered Web pages; features still a bit sluggish. *Apr 97, p. 58*

★★★★/8.8 **Video SpiceRack 1.0**, Pixélan Software, 360/647-0112, $179. Novel plug-in collection has more than 300 transition and effect gradients. *May 97, p. 118*

UTILITIES

★★★★/7.5 **Adobe Type Manager Deluxe 4.0**, Adobe Systems, 408/536-6000, $99.95. The new ATM has font substitution and antialiasing. *Jun 97, p. 58*

★★★/6.8 **Adobe Type Reunion Deluxe 2.0**, Adobe

continues

Also plays as an audio book on home & car stereos.

Why settle for the moon, when you can give your child nine planets, Orion's Belt, and a pink poodle?

Introducing Connie & Bonnie's Birthday Blastoff.™ The latest sign of intelligent life.

Show your kids there's more to outer space than zapping brain-sucking aliens. Our new CD-ROM is *Connie & Bonnie's Birthday Blastoff*, an interactive interstellar adventure offering a view of space second only to the front seat of the Discovery shuttle.

A launch pad for learning.

Every page provides new adventures and new things to learn. As Connie and Bonnie speed past Mars, kids discover why it's red, and how much they would weigh standing on its surface. Fun riddles then challenge your kids to apply their newfound knowledge.

Kids can paint using the fun stamps, colors and backgrounds provided.

And to encourage further exploration, each page suggests activities away from the computer, like using a flashlight and an apple to study eclipses.

More fun than zero gravity.

From connect-the-dots constellations to genuine NASA videos, we have every outer space activity imaginable. And with our "learn as you play" philosophy, they all educate while they entertain. One small step by you will help your kids make a giant leap in learning. Call 1-800-980-9468, Dept. M939 today to try the software, risk-free for 30 days. If you're not completely satisfied, return it and you'll owe nothing. Or keep it for $39.95 plus $4.95 shipping and handling.†

THE SEARCH FOR INTELLIGENT LIFE BEGINS AT HOME.™

Try it risk free for 30 days
Call 1-800-980-9468 Dept. M939

Active Arts, 610 SW Broadway, Ste 500, Portland, OR 97205 www.active-arts.com

MacOS

Ages 6-10

Offer ends October 1, 1997

©1997 Active Arts, Inc. † Shipping and handling may be slightly higher outside the continental United States.

Circle 50 on reader service card

Star Ratings

Systems, 408/536-6000, $60. This font-menu manager has cool features but isn't as good as TypeTamer. *Jun 97, p. 58*

★★★★/7.5 **Audiotracer 1.0,** Optical Media, 408/376-3511, $99. CD-R mastering program designed for creating audio CDs. *Apr 97, p. 76*

★★★/5.8 **Bookends Plus 4.0,** Westing Software, 415/945-3870, $129. Reference manager adds powerful Web functions. *Jul 97, p. 76*

★★★/6.0 **Burn It 1.0,** Syncronys Softcorp, 213/340-4100, $29.95. Inexpensive but flawed security suite. *Apr 97, p. 69*

★★/3.8 **Common Ground 3.0.1,** Hummingbird Communications, 415/917-7300, $195. Portable document program can't match Adobe Acrobat. *Jul 97, p. 72*

★★★★★/9.3 **Conflict Catcher 4.01,** Casady & Greene, 408/484-9228, $99.95. The best start-up manager gets even better with this upgrade. *Jul 97, p. 62*

★★★★/7.6 **Cumulus Desktop 3.0,** Canto Software, 415/905-0300, $99.95. Affordable multimedia database offers power and a superior interface. *Jun 97, p. 68*

★★★/6.8 **Fetch 1.5,** Extensis, 503/274-2020, $99.95. Multimedia database has cool features but lacks flexibility and ease of use. *Jun 97, p. 68*

★★★/6.8 **Font Box 2.1,** Insider Software, 619/622-9900, $29.99 (Personal Edition) to $169.95 (Network Edition). Font organizer is helpful, but not a panacea. *Aug 97, p. 74*

★★/3.0 **Front Office 1.6 LE,** STF Technologies, 816/220-0100, $59. A bad temp wouldn't garble your phone messages this badly. *Jun 97, p. 66*

★★/3.9 **Image Alchemy PS 2.1.4,** Handmade Software, 510/252-0101, $495. An expensive—and unreliable—solution to service-bureau crises. *Jul 97, p. 60*

★★★/5.7 **InfoGenie 2.0,** Casady & Greene, 408/484-9228, $79.95. Updated information manager adds links to Web browsers. *Jun 97, p. 84*

★★/3.8 **Internet Voice Mail 3.0,** VocalTec, 201/768-9400, $29.95. Internet Voice Mail has limited functionality and is full of bugs. *May 97, p. 80*

★★★★/8.8 **LetterRip 1.0.2,** Fog City Software, 408/454-1405, $295. Mailing-list server is simpler and cheaper than ListStar. *Jun 97, p. 77*

★★★★/8.3 **ListStar 1.1,** StarNine Technologies, 510/649-4949, $499. Serious mailing-list management with industrial-strength tools. *Jun 97, p. 77*

★★★★/7.2 **MAE 3.0,** Apple Computer, 408/996-1010, $459. Mac-in-the-box for Unix workstations. *Jun 97, p. 73*

★★★★/8.1 **MATLAB 5,** The MathWorks, 508/647-7000, $1795. Still the fastest route to solutions in industrial math. *Jul 97, p. 74*

★★/4.3 **Now Synchronize 1.0,** Now Software, 503/274-2800, $39.95. Disastrous PDA-to-PIM link for Pilot. *Aug 97, p. 70*

★★★★/7.3 **Numbers & Charts 1.0.1,** Adrenaline, 418/658-9909, $149.95. OpenDoc spreadsheet parts show the promise of component software. *Aug 97, p. 64*

★★★★/7.2 **OmniPage Pro 7.0,** Caere, 408/395-7000, $499. OCR package has improved interface but not accuracy. *Jun 97, p. 83*

★★★/6.6 **Online Army Knife 1.2,** JEM Software, 303/422-4766, $69.95. Add-on spelling checker is fast and Internet-savvy but has some rough edges. *Jun 97, p. 62*

★★★★/7.4 **Pro FORTRAN 5.0,** Absoft, 810/853-0050, $899. Formidable compiler suite has faster compiled programs and a better debugger. *Jul 97, p. 80*

★★★★/8.2 **QuicKeys 3.5.2,** CE Software, 515/224-1995, $119. Macro maker's recent update adds native PowerPC speed. *Jul 97, p. 62*

★★/4.7 **SoftWindows 95 4.0,** Insignia Solutions, 408/327-6000, $349 to $379 (estimated). Faster than before, but still no match for hardware solutions (or a PC). *Jul 97, p. 54*

★/2.6 **SpeechPrompter,** Orator Company, 619/420-9150, $89.95. Prompter software's jerky scrolling makes index cards look good. *Jun 97, p. 88*

★★★★/7.2 **Speed Doubler 2.0.1,** Connectix, 415/571-5100, $99. Upgrade boosts network transfer times, same speed as prior versions. *May 97, p. 52*

★★/4.8 **Spellswell Plus 2.1.1,** Working Software, 408/423-5696, $14.95. Add-on spelling checker doesn't live up to its name. *Jun 97, p. 62*

★★★/6.0 **SpellTools 1.2.1,** Newer Technology, 316/943-0222, $19.95. Add-on spelling checker has text-to-speech feature but no interactive checking, *Jun 97, p. 62*

★★★/6.9 **StyleScript 3.5,** Infowave, 604/473-3600, $149. PostScript solution works...for some ink-jets. *Aug 97, p. 67*

★★/3.0 **System Sculptor 2.01,** Colourfull Creations, 810/749-3013, $29.95. Bare-bones utility for managing extensions. *Aug 97, p. 72*

★★/4.0 **Tailor 2.0,** EnFocus Software, 303/393-7282, $369. A weak interface and unreliable performance hinder its troubleshooting talents. *Jul 97, p. 60*

★★★★/8.8 **Virex 5.7,** Datawatch, 508/988-9700, $99. Great virus-detection features, checks downloaded Internet files for viruses. *May 97, p. 78*

★★★★/8.0 **Wingz 2.1.1,** Investment Intelligence Systems Group, 913/663-4472, $399. Powerful programming tool disguised as a spreadsheet. *May 97, p. 71*

Hardware

INPUT DEVICES

★★★/5.2 **GlidePoint Keyboard,** Alps Electric, 408/432-6000, $139.95. Keyboard offers full set of keys with intuitive touchpad. *Apr 97, p. 60*

★★★★/7.5 **Orbit Trackball,** Kensington, 415/572-2700, $69.95. A well-designed, attractive mouse alternative. *Aug 97, p. 70*

★★★/5.9 **TrackBoard and NumPad,** Datadesk, 206/842-5480, $99.95 to $139.95. Keyboard has a separate numeric keypad but only a small trackball. *Apr 97, p. 60*

MISCELLANEOUS HARDWARE

★★★★/7.0 **Apex,** Pinnacle Micro, 714/789-3000, $1995. King-size magneto-optical drive offers respectable speeds. *Apr 97, p. 54*

★★★/6.3 **CD Stomper,** Stomp, 714/250-6771, $79.95. Of the two labeling kits tested, CD Stomper is clearly the better product. *Aug 97, p. 60*

★★★/5.1 **FM Radio 1.1,** La Cie, 503/520-9000, $49.95. If you want to listen to the radio, you're better off buying a boom box. *Jun 97, p. 90*

★★★/5.0 **MessagePad 2000,** Apple Computer, 408/996-1010, $949. This Newton's finally useful, but it's priced out of the realm of sanity. *Jul 97, p. 69*

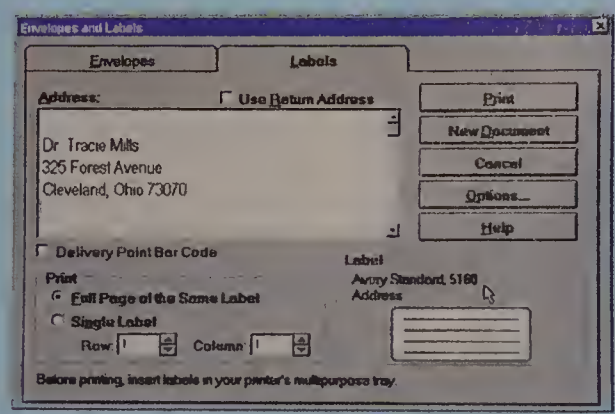
★★/4.6 **Neato CD Labeler Kit,** Neato, 203/466-5170, $79.95. Neato can't hold a candle to the CD Stomper. *Aug 97, p. 60*

★★★/6.9 **OrangePC 540,** Orange Micro, 714/779-2772, $2456. Windows 95 compatibility card offers Pentium speed at a Pentium price. *Jul 97, p. 54*

★★★★/7.8 **Pilot,** Palm Computing, 415/237-6000, $249 to $299. Pocket PDA is small, swift, and sweet.

continues

"Don't leave!
I don't know how to do this!



Oh wait, hey, I got it!"

How's that for a learning curve? It's all because preset layouts for Avery® products already exist in Microsoft® Word, WordPerfect® and LabelPro®. Which takes all the guesswork out of what used to be daunting projects. Like printing out address labels. Or business cards. Or whatever. And that gives you more time to sit back, relax, and bask in your superhuman intelligence.

AVERY®
How will you use us today?™
1-800-477-4404 ext 167
www.avery.com

"Norm the Bee Guy" as printed on the EPSON Stylus Photo.

INTRODUCING THE FIRST PRINTER THAT'S AS RELENTLESS ABOUT CAPTURING A PHOTOGRAPH AS YOU ARE.

It's called the EPSON Stylus® Photo and its virtually continuous tone printing treats your photo with the respect it deserves. How? With Micro Piezo™ ink jet technology—the cleanest, most consistent way to get 6 colors of ink on paper. The results? Incredibly smooth gradations, amazing detail and perfect color. Now, nothing will stop you from getting a great print of your photograph. After all, nothing stopped you from capturing it. Not even a swarm of hungry bees. For more information, call 1-800-GO-EPSON and ask for Operator 3010. Or visit www.epson.com.

VIRTUALLY CONTINUOUS TONE 6 COLOR PRINTING / 720 X 720 DPI / FULL MAC & WINDOWS COMPATIBILITY / $499*

*Street price may vary. EPSON and EPSON Stylus are registered trademarks of Seiko Epson Corp. Micro Piezo is a trademark of Epson America, Inc. ©1997 Epson America, Inc.

YOU'VE GOT TO SEE IT IN EPSON COLOR.

Star Ratings

Apr 97, p. 48

★★/4.7 **Pippin @World,** Bandai Digital Entertainment, 310/404-1600, $499.99; $69.99 for keyboard. Costly Internet-connection and games device has poor image quality. *May 97, p. 64*

★★★/6.7 **Signature CD Color Printer,** Fargo, 612/941-9470, $1295. If you produce a lot of CDs, this printer is a good investment. *Aug 97, p. 60*

★★★/6.8 **WebTV Internet Terminal,** Sony, 888/772-7669, $349.95; $79.95 for keyboard. Expensive, easy-to-use Internet-connection device has nice interface. *May 97, p. 64*

MODEMS/NETWORKS

★★★★/8.8 **4-Sight Fax 4.0,** 4-Sight Technologies, 515/221-3000, $795 for ten users. Flexible, reliable faxing on your network. *Apr 97, p. 57*

★★★/6.8 **Courier V.Everything 56 K,** U.S. Robotics, 847/982-5010, $395. If you're not ready for setup hassles, wait until 56K technology is more mature. *Jul 97, p. 67*

★★★/6.5 **DataShuttle 256,** RNS, 805/968-4262, $1395. Card allows superfast, two-line ISDN file transfers. *Jun 97, p. 75*

★★★★/8.6 **InterJet,** Whistle Communications, 415/577-7000, $1995 to $2395. All-in-one hardware-and-software combo gets your office on the Internet. *Jun 97, p. 60*

★★/4.8 **MultiModemZDXV,** Multi-Tech Systems, 612/785-3500, $269. Expensive average-performing 33.6-Kbps modem, no Mac software. *Apr 97, p. 123*

★★★/5.3 **MV.34MA,** Boca Research, 561/997-6227, $236. Cheap 33.6-Kbps modem offers fast, easy internet hookup. *Apr 97, p. 123*

★★★★/8.3 **Network Server 700/200,** Apple Computer, 408/996-1010, $11,800. Server offers networking horsepower and high-speed I/O. *May 97, p. 54*

★★★★/8.4 **QuickStream Pro,** Sonic Systems, 408/736-1900, $999. Remote-access server offers Web administration, eases telecommuting access. *Jul 97, p. 80*

★★★/6.6 **Quicktel II-C 33X-ASP-C-M,** Logicode Technology, 805/383-2500, $319. Fast 33.6-Kbps modem with innovative design, but a bit expensive. *Apr 97, p. 123*

★★/4.5 **SmartLink 3334AV,** Archtek America, 818/912-9800, $209. Poorly performing, reasonably priced 33.6-Kbps modem. *Apr 97, p. 123*

★/2.7 **SmartOne 336FLXMac,** Best Data Products, 818/773-9600, $179. Inexpensive 33.6-Kbps modem is one of the slowest. *Apr 97, p. 123*

★★★★/7.1 **Sportster 28.8/33.6 Faxmodem,** U.S. Robotics, 847/676-7010, $179 (estimated price). Affordable 33.6-Kbps modem offers best performance. *Apr 97, p. 123.* **Editors' Choice** for best 33.6-Kbps fax modem.

★★★/6.7 **SupraSonic 336V+,** Diamond Multimedia Systems, 360/604-1400, $249 (estimated price). Full-featured 33.6-Kbps modem isn't cheap but is really fast. *Apr 97, p. 123*

★★★/6.5 **TelePort Internet Edition 33.6,** Global Village Communication, 408/523-1000, $169 (estimated price). Fast 33.6-Kbps modem includes flash ROM and CCL scripts. *Apr 97, p. 123*

★★★★/8.2 **Workgroup Server 8550/200,** Apple Computer, 408/996-1010, $4200. An affordable 200-MHz medium-duty Internet server that's easy to use. *May 97, p. 54*

★★/4.9 **Zoom V.34X Plus,** Zoom Telephonics, 617/423-1072, $199. Average-performing 33.6-Kbps modem with a long, seven-year warranty. *Apr 97, p. 123*

PRINTERS

★★★/6.9 **Apple Color StyleWriter 1500,** Apple Computer, 408/996-1010, $249. Lackluster performance and image quality mark this color ink-jet. *Feb 97, p. 140*

★★★★/7.5 **Apple Color StyleWriter 2500,** Apple Computer, 408/996-1010, $349. Relatively fast color ink-jet has fair image quality. *Feb 97, p. 140*

★★★★/7.3 **BJC-4550,** Canon Computer Systems, 714/438-3000, $499. Ink-jet produces beautiful images with optional photo ink kit. *Feb 97, p. 140*

★★★/6.7 **Color LaserWriter 12/660 PS,** Apple Computer, 408/996-1010, $6100 (estimated). Lower price and more RAM than its predecessor, but still middle of the pack. *Jun 97, p. 56*

★★★/6.9 **DeskJet 1600CM,** Hewlett-Packard, 408/246-4300, $1999. Expensive ink-jet printer offers good speed and crisp text. *Feb 97, p. 140*

★★★★/7.8 **DeskJet 870Cse,** Hewlett-Packard, 408/246-4300, $599. Color ink-jet printer offers good speed and image quality. *Jun 97, p. 125*

★★★/5.9 **DeskWriter 600,** Hewlett-Packard, 408/246-4300, $199. Decent speed and average print quality at a nice price. *Feb 97, p. 140*

★★★★/7.2 **DeskWriter 680c,** Hewlett-Packard, 408/246-4300, $279. Color ink-jet offers above-average image quality. *Feb 97, p. 140*

★★★/6.9 **IBM Network Color Printer,** IBM, 404/238-1234, $8999. Its speed and output won't disappoint you, but it's not a good deal. *Jun 97, p. 56*

★★★/6.2 **LaserJet 5M,** Hewlett-Packard, 408/246-4300, $2229. Laser printer is easily upgraded and offers top-notch software. *Jun 97, p. 125*

★★★/6.0 **LaserJet 6MP,** Hewlett-Packard, 408/246-4300, $1149. Laser printer offers middling performance and excellent software. *Jun 97, p. 125*

★★★/6.0 **LaserWriter 12/640 PS,** Apple Computer, 408/996-1010, $1599. Laser printer has good speed and image quality for the price. *Jun 97, p. 125*

★★★/5.4 **MD-2010,** Alps Electric, 408/432-6000, $499. Low-end color printer is slow, with poor-quality output. *Feb 97, p. 140*

★★★/5.2 **Personal LaserWriter 4/600 PS,** Apple Computer, 408/996-1010, $899. This expensive laser printer is slow and has nonstandard memory. *Jun 97, p. 125*

★★★★/7.8 **Stylus Color 500,** Epson America, 310/782-0770, $279. Good price, output, and speed, but this color ink-jet is messy. *Feb 97, p. 140.* **Editors' Choice** for best home printer.

★★★★★/9.1 **Stylus Color 800,** Epson America, 310/782-0770, $449. Color ink-jet printer is fast with outstanding image quality. *Jun 97, p. 125.* **Editors' Choice** for best personal printer.

★★★/5.7 **TruPhoto,** Panasonic Interactive Media, 408/653-1888, $479.95. Digital photo printer offers instant snapshots, delayed gratification. *Apr 97, p. 64*

SCANNERS

★★★★/7.5 **Agfa StudioStar,** Agfa, 508/658-5600, $989. Graphics pros will treasure scanner's high-quality scans and powerful software. *Feb 97, p. 62*

★★/4.8 **Apple Color OneScanner 1200/30,** Apple Computer, 408/996-1010, $799. A big disappointment; offers little advantage over its lower-priced predecessor. *Feb 97, p. 62*

★★★★/8.4 **Epson Expression 636,** Epson America, 800/922-8911, $899 as tested. Low-cost color scanner gets the nod for all-around use. *Feb 97, p. 62*

★★/4.9 **HP ScanJet 5p,** Hewlett-Packard, 800/722-6538, $530. Attractive scanner marred by mediocre image quality and software. *Apr 97, p. 50*

continues

To buy smart when you're choosing a Mac OS computer, your best bet is to let Macworld be your guide. Check out the Mac Superguide in this issue — and every issue — for the latest and greatest in Mac systems. It's a comprehensive guide to every system on the market, meticulously reviewed and Star Rated, with our favorites highlighted by an Editors' Choice symbol.

With all the systems out there, you could easily get lost if you try to navigate them on your own. Don't risk it; trust the Superguide.

Macworld
THE ESSENTIAL MACINTOSH® RESOURCE

Star Ratings

★★★★/7.1 **MCA S600C,** Mitsubishi Chemical America, 408/954-8484, $299. Document scanning gets colorized. *Jun 97, p. 78*

STORAGE

★★★★/7.4 **1.0GB Jaz,** Club Mac, 714/768-8130, $499. Speedy third-party Jaz drive is hobbled by poor manual and missing refinements. *Aug 97, p. 115*

★★★/6.6 **1.0GB Jaz D2/Stol,** La Cie, 503/520-9000, $469. Third-party Jaz drive crawls at barely half the speed of Iomega's own. *Aug 97, p. 115*

★★★/6.8 **2.6GB Optical,** ClubMac, 714/768-8130, $1699. Optical drive offers middle-of-the-road price, performance, and features. *Aug 97, p. 115*

★★★/6.6 **540MB MCD D2/Stol,** La Cie, 503/520-9000, $249. Slowest mid-capacity removable hard drive is no match for the APS M540. *Aug 97, p. 115*

★★★/5.7 **640MB MO D2/Stol,** La Cie, 503/520-9000, $499. Poorest-performing medium-capacity optical drive is not a good buy. *Aug 97, p. 115*

★★★/6.2 **640se,** Maxoptix, 510/353-9700, $685. Comparably priced and almost as speedy as the APS 640 MO, this drive is a reasonable choice. *Aug 97, p. 115*

★★★/6.3 **Apex 4.6GB,** Pinnacle Micro, 714/789-3000, $1695. Space-age case fails to make up for surprisingly poor performance. *Aug 97, p. 115*

★★★/5.5 **APS 230 MO,** APS Technologies, 816/483-1600, $379.95. Optical drive performs better than the Sys.230/SCSI, but it's no bargain. *Aug 97, p. 115*

★★★/6.4 **APS 640 MO,** APS Technologies, 816/483-1600, $599.95. Best-performing medium-capacity optical drive is a good buy. *Aug 97, p. 115*

★★★★/8.1 **APS Jaz,** APS Technologies, 816/483-1600, $499.95. This third-party Jaz drive comes closest to matching Iomega's. *Aug 97, p. 115.* **Editors' Choice** for best removable hard drive.

★★★★/7.2 **APS M540,** APS Technologies, 816/483-1600, $299.95. Top-performing mid-capacity removable is ideal for budget watchers. *Aug 97, p. 115*

★★★/5.9 **DynaMO 640,** Fujitsu, 408/432-6333, $499. Second-place speed for a medium-capacity MO and few amenities. *Aug 97, p. 115*

★★★/6.7 **EZFlyer 230,** SyQuest, 510/226-4000, $199. The Zip's nearest competitor has modest performance at a low price. *Aug 97, p. 115*

★★★/6.8 **HammerDisk 2600,** StreamLogic, 818/701-8400, $2509. Good performance but few amenities and a very high price. *Aug 97, p. 115*

★★★/5.6 **HammerDisk PE 640,** StreamLogic, 818/701-8400, $809. Highest-priced medium-capacity MO doesn't have great performance. *Aug 97, p. 115*

★★★★/7.2 **Hammer Jaz Solo 1000,** StreamLogic, 818/701-8400, $589. Highest-priced third-party Jaz with only modest performance and a so-so warranty. *Aug 97, p. 115*

★★★★/8.3 **Jaz,** Iomega, 801/778-1000, $399. The Jaz drive to beat: good price, warranty, performance, and design. *Aug 97, p. 115.* **Editors' Choice** for best removable hard drive.

★★★/6.8 **Nomai 540,** Nomai, 800/556-6624, $299. Pocket-size removable hard drive lacks essentials. *Aug 97, p. 115*

★★★/5.2 **PD,** Panasonic, 800/742-8086, $499.95. Its ability to read CD-ROMs and play CDs doesn't offset its slothfulness. *Aug 97, p. 115*

★★★/5.4 **PDI 5110,** ProDirect, 612/941-1805, $399. Dismal performance and weak documentation hinder low-capacity removable hard drive. *Aug 97, p. 115*

★★★/6.2 **PDI 5200,** ProDirect, 612/941-1805, $499. Higher capacity and better performance than the PDI 5110, but still no bargain. *Aug 97, p. 115*

★★★★/7.2 **PowerMO 2600/SCSI,** Olympus, 516/844-5000, $1799. Fastest optical drive is well designed and reasonably priced. *Aug 97, p. 115.* **Editors' Choice** for best optical drive.

★★★★/7.5 **RMD 1.0 ISD-G1/FWB,** DynaTek, 902/832-3000, $516. Middle-of-the-road Jaz drive is slower than most but reasonably priced. *Aug 97, p. 115*

★★★★/7.1 **ROS 4.6 PSD-G2/FWB,** DynaTek, 902/832-3000, $2012. Slower than others, but with twice the capacity at almost the same price. *Aug 97, p. 115.* **Editors' Choice** for best optical drive.

★★★/6.6 **SCSI Express 2600SME,** Micro Design International, 407/677-8333, $1995. Slowest drive in this size group also has lowest price. *Aug 97, p. 115*

★★★★/7.6 **SyJet 1.5GB,** SyQuest, 510/226-4000, $499. Highest-capacity removable hard drive is speedy but sensitive to SCSI-chain length. *Aug 97, p. 115*

★★★/5.2 **Sys.230/SCSI,** Olympus, 800/347-4027, $359. Drive has low capacity and poor performance at a price that's no bargain. *Aug 97, p. 115*

★★★/5.8 **Zip,** Iomega, 801/778-1000, $149. Best-selling removable is glacially slow but exceptionally cheap. *Aug 97, p. 115*

VIDEO DISPLAY

★★★/6.1 **AlphaScan 711,** Sampo Technology, 770/449-6220, $599. Unbeatable price for a great picture; limited color features and on-screen controls. *Jul 97, p. 117*

★★★/6.0 **AlphaScan 760,** Sampo Technology, 770/449-6220, $799. Screen is beautiful, but on-screen controls are ugly and not user-friendly. *Jul 97, p. 117*

★★★★/7.4 **AppleVision 1710,** Apple Computer, 408/996-1010, $799 (estimated). Fine picture, affordable price, plus excellent software control interface. *Jul 97, p. 117*

★★/3.9 **Crystal Lake 17,** Pacom Data, 408/764-0590, $549. Sharp picture and rock-bottom price, but limited features and controls. *Jul 97, p. 117*

★★★★/7.2 **Diamond Pro 87TXM,** Mitsubishi Electronics America, 714/220-2500, $829. Solid image quality, great controls—all at a realistic price. *Jul 97, p. 117*

★★★/5.5 **DJ702e-M,** Mag Innovision, 714/751-2008, $659. Good image quality and a good price, with cool hardware controls. *Jul 97, p. 117*

★★★/5.5 **DX700T-M,** Mag Innovision, 714/751-2008, $799. Sharp image, sensible controls, but picture's too dim to make the first rank. *Jul 97, p. 117*

★★★/6.2 **EO75-M,** Princeton Graphic Systems, 714/751-8405, $799. Terrific picture and low price with iffy controls and chintzy swivel. *Jul 97, p. 117*

★★★/5.8 **EO76-M,** Princeton Graphic Systems, 714/751-8405, $799. Despite poor on-screen controls, it's a fair deal with good picture and price. *Jul 97, p. 117*

★★★/6.5 **FlexScan FX-C5,** Eizo Nanao Technologies, 562/431-5011, $948. Good-looking, but has somewhat mystifying hardware controls. *Jul 97, p. 117*

★★★/6.7 **FlexScan TX-C7S,** Eizo Nanao Technologies, 562/431-5011, $1299. Excellent image quality and software interface, but it's exorbitantly expensive. *Jul 97, p. 117*

★★★★/7.0 **Mazellan 17PX,** Hansol Multitech, 714/562-5151, $899. Affordable, good image quality, and highly functional hardware controls. *Jul 97, p. 117*

★★★/6.4 **Multigraph 447XI,** Nokia Display Prod-

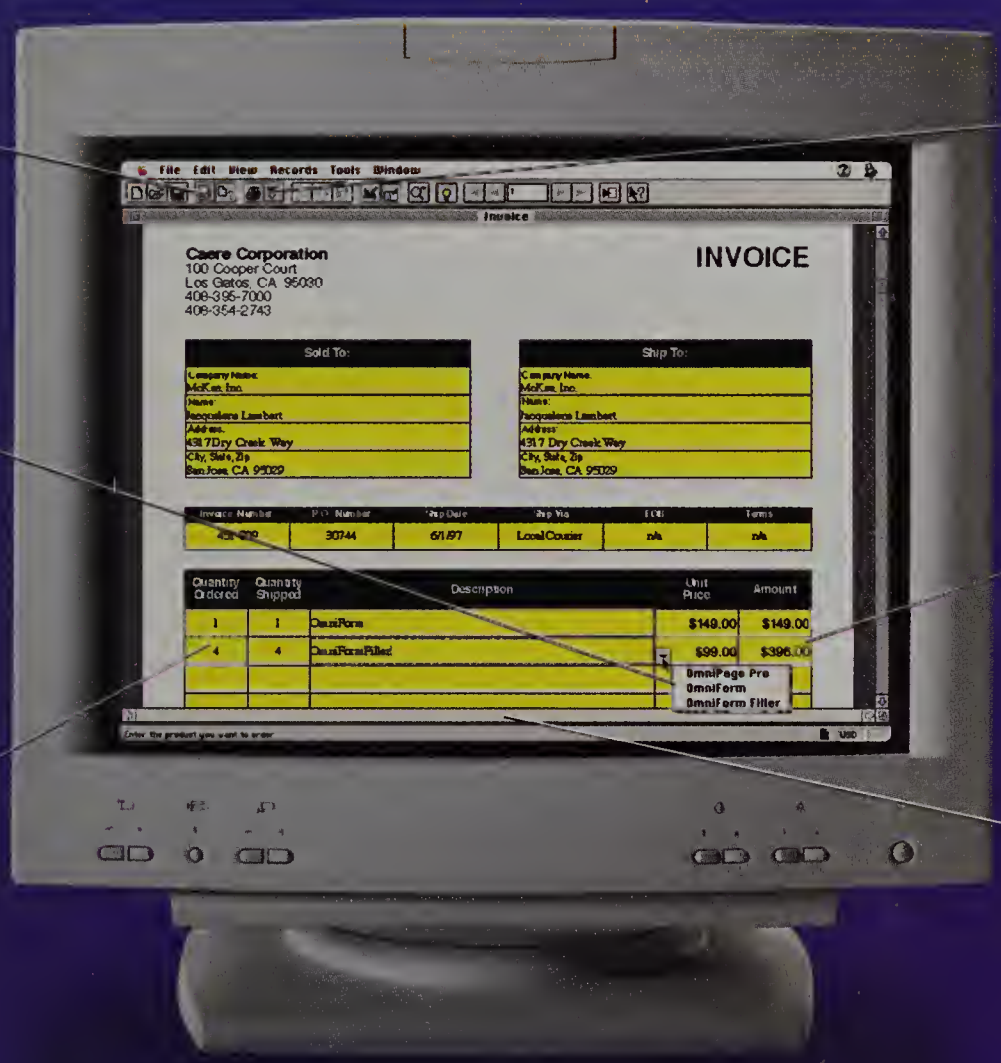
continues

SIX KEY REASONS TO MAKE YOUR PAPER FORMS ELECTRONIC.

1 INSTANT FORMS: *Scan in existing forms for easy conversion, pick pre-built form components from a scrap album or create custom forms using powerful design tools.*

2 EASY TO FILL OUT: *Filling out electronic forms is easy. Just tab and type. Enter data quickly from a list of drop down choices.*

3 DATABASE INTEGRATION: *Automatically builds a database for each form. Search and sort records. Import/Export data via tab delimited file formats.*



4 SPELL CHECKING: *Electronic forms give you perfect results by spell checking your forms automatically. Plus you can print, fax or e-mail your forms to others.*

5 BUILT-IN CALCULATIONS: *Electronic forms can create calculations automatically or just drag and drop using over 35 Excel-like calculations.*

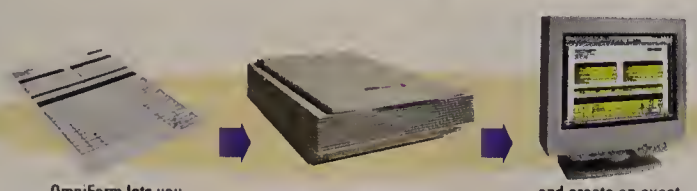
6 CROSS PLATFORM SUPPORT: *OmniForm file formats are platform independent, so Macintosh and Windows users can share forms.*

OmniForm GIVES YOU EXACT ELECTRONIC DUPLICATES OF YOUR PAPER FORMS IN SECONDS.

Don't put up with paper forms any longer. Using Caere's proven, award-winning OmniPage® OCR technology, OmniForm® lets you scan and convert existing paper forms into electronic forms in seconds. The result? Total electronic duplicates you can see on your computer screen, edit, fill out and even spell check. To enter or change data, you just tab and type. It's that easy!

With OmniForm, you can print and fax your forms, or e-mail them throughout your company. And it gives you a simple, but powerful tool set to edit your forms, change fonts, add graphics or design completely new forms from scratch.

OmniForm also performs automatic calculations, validates entries and creates databases. So the information you get from your forms works a lot harder for you, not the other way around.



Want to add users? OmniForm Filler lets even more people use your electronic forms for a small additional cost.

Why deal with paper when you can save so much time and hassle using OmniForm? Call or visit a reseller for your copy today.

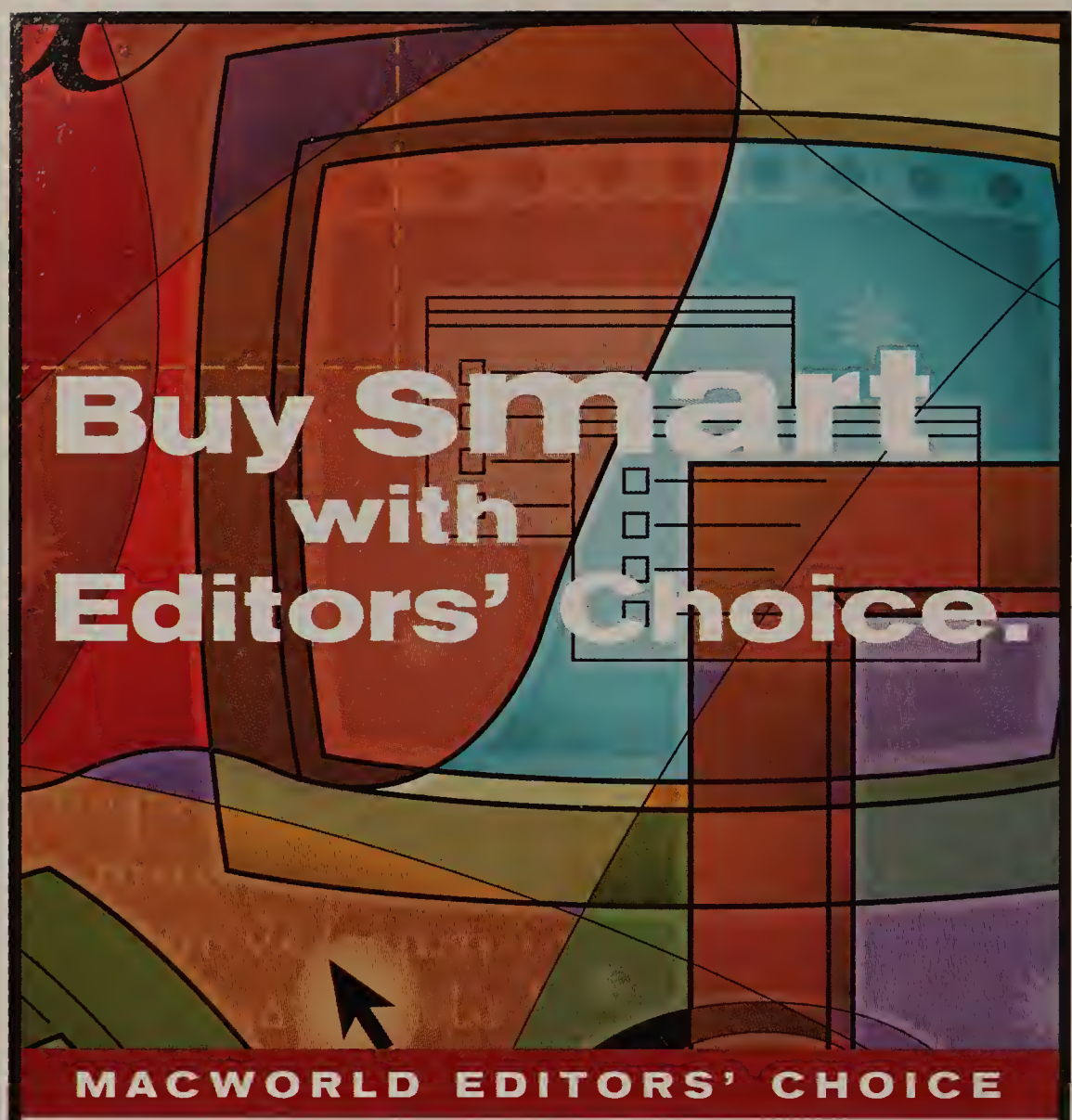
caere®

www.caere.com

Available for Macintosh, Windows 95, Windows 3.1, and Windows NT

*Suggested price US dollars—subject to change without notice. Offer valid in US and Canada only. Caere, the Caere logo, OmniPage and OmniForm are registered trademarks of Caere Corporation. All other names are the property of their respective holders. © 1997

Circle 68 on reader service card



Macworld EDITORS' CHOICE ★★★★★

To buy smart when choosing Macintosh hardware or software, you need an expert's opinion. Fortunately, the experts at Macworld are more than willing to give you theirs. Just leaf through the pages of this issue — or any issue of Macworld. Wherever you see Editors' Choice, you can be sure the product has passed the most rigorous tests for performance and quality in its class. And comes out a winner.

Our reviewers scrutinize just about every Mac product that hits the market. If it wins us over, you can't go wrong.

Macworld
THE ESSENTIAL MACINTOSH® RESOURCE

Star Ratings

ucts, 415/331-4244, $925. Great color and great controls, but the price is above average. *Jul 97, p. 117*

★★★/5.1 **Multiple Scan 1705 Display,** Apple Computer, 408/996-1010, $649 (estimated). Good image quality, but tends to bloom at high brightness. *Jul 97, p. 117*

★★★/6.8 **Multiscan 17sell,** Sony Computer, 408/894-0555, $999 (estimated). A slight magenta cast and high price tag, but otherwise a good choice. *Jul 97, p. 117*

★★★★/7.5 **Multiscan 200sf,** Sony Computer, 408/894-0555, $799 (estimated). Excellent quality display plus an elegant interface and surprisingly affordable. *Jul 97, p. 117.* **Editors' Choice** for best 17-inch monitor.

★★★★/7.3 **MultiSync P750,** NEC Technologies, 630/775-7900, $899 (estimated). Worth the money for its brilliant picture and great on-screen controls. *Jul 97, p. 117*

★★★/6.9 **MultiSync XV17+,** NEC Technologies, 630/775-7900, $749 (estimated). Richly colored picture and superb controls—a good bargain. *Jul 97, p. 117*

★★★★/7.1 **Optiquest V773,** ViewSonic, 909/869-7976, $599. The best combo of image quality and controls we've seen for under $600. *Jul 97, p. 117*

★★★/6.7 **PanaSync S17,** Panasonic Computer, 201/392-4500, $729. A sensible choice—good picture, controls, price, and support. *Jul 97, p. 117*

★★★/6.4 **PanaSync/Pro P17,** Panasonic Computer, 201/392-4500, $899. High-quality image, controls, and support, like its lower-price sibling, the S17. *Jul 97, p. 117*

★★★/6.9 **Pivot 1700,** Portrait Displays, 510/227-2700, $1099. Unique pivoting feature isn't cheap, but it's the only one in town. *Jul 97, p. 117*

★★★/6.4 **PT775,** ViewSonic, 909/869-7976, $999. Good image quality and controls, but price doesn't match performance. *Jul 97, p. 117*

★★★/5.3 **RasterOps SuperScan Mc 600,** Hitachi/NSA, 617/461-8300, $799. Slightly clunky controls but decent picture—a good choice for the budget-minded. *Jul 97, p. 117*

★★★/5.1 **RasterOps SuperScan Mc 611,** Hitachi/NSA, 617/461-8300, $949. Merely average image quality for the price, and hard-to-see controls. *Jul 97, p. 117*

★★★★/8.9 **Sony GDM-W900,** Sony Electronics, 408/955-5142, $4999. A wide-screen monitor for the color connoisseur. *Jun 97, p. 84*

★★★★/7.1 **SyncMaster 17GLi,** Samsung Electronics America, 201/229-4000, $789. Affordable, good-looking display with smart, snazzy controls. *Jul 97, p. 117*

★★★★/7.0 **SyncMaster 17GLsi,** Samsung Electronics America, 201/229-4000, $1019. Outperforms the 17GLi, has custom color controls, but at a big price hike. *Jul 97, p. 117*

★★★/6.8 **VisionMaster 17,** Iiyama North America, 215/957-6543, $799. Great image quality at a very good price; slightly convoluted controls. *Jul 97, p. 117*

★★★★/7.2 **VisionMaster Pro 17,** Iiyama North America, 215/957-6543, $899. Beautiful, feature-rich, and sensibly priced; slightly confusing controls. *Jul 97, p. 117*

★★★/5.4 **Visual Sensations VS-9,** KDS, 714/379-5599, $753. Good-looking display, but inelegant controls and inflexible swivel stand. *Jul 97, p. 117*

★★★/5.5 **WyseVision WY-782D,** Wyse Technology, 408/922-4300, $949. Compelling picture and price, but marred by awkward controls. *Jul 97, p. 117* m

Simply OUTSTANDING

Corel® World Design Contest 1996

Best of Show: Hedy Lamarr, a vector illustration created by John Corkery in CorelDRAW

A Powerful Graphics and Word-Processing Suite for Power Macintosh®

Introducing a fully featured graphics suite for Macintosh® users. Offering a complete graphics and word-processing solution for both novice and professional artists, CorelDRAW™ 6 Suite for Power Macintosh® allows you to create sophisticated artwork effortlessly. Add breathtakingly realistic special effects to your illustrations with innovative drawing, image-editing, 3D modeling and texture-creation tools. Internet users will find Corel® WordPerfect® 3.5 an incredibly intuitive way to create polished documents for the World Wide Web. Offering all this and much more, CorelDRAW 6 Suite for Power Macintosh delivers outstanding productivity, power and value, and marks a new era in graphics software for Macintosh users.

Includes:

COREL WordPerfect

COREL DRAW!™ 6 Suite

Mac OS

Includes:

- **CorelDRAW™ 6 for Power Macintosh®**
  Illustration and Page Layout
- **Corel® WordPerfect® 3.5**
  Intelligent Word Processing
- **CorelDREAM 3D 6**
  3D Modeling and Rendering
- **Corel TEXTURE™ 6**
  Bitmap Texture Creation
- **Corel ARTISAN™ 6**
  Photo Editing and Image Creation
- **Netscape Navigator™ 2.0**

Copyright © 1997 Corel Corporation. All rights reserved. Corel, WordPerfect, CorelDRAW, Corel ARTISAN and Corel Texture are trademarks or registered trademarks of Corel Corporation or Corel Corporation Limited. Macintosh and Power Macintosh are registered trademarks of Apple Computer, Inc. Netscape and Netscape Navigator are trademarks of Netscape Communications Corporation. All other product, font and company names and logos are trademarks or registered trademarks of their respective corporations.

COREL WTA TOUR

Corel, Official World Title Sponsor of the COREL WTA TOUR

MacMall

Call Today! 1-800-222-2808

$148.99* Competitive upgrade CD-ROM version

$389.99* Full CD-ROM version

*US$ plus applicable taxes and shipping.

KUR-0327-US

COREL $3,000,000 WORLD CONTEST

To find out how to enter, visit our Web site at: www.corel.com/contests

COREL

www.corel.com

Call now for taxed literature!
1-613-728-0826 ext 3080
Document # 1008

Circle 78 on reader service card

Mac Superguide

MACWORLD SELECTS THE BEST MAC OS SYSTEMS

Edited by Allyson Bates

Looking for a new Macintosh? Confused about what new model to buy? Look no further. Each month, the *Mac Superguide* provides *Macworld*'s picks for the best Mac OS systems. Typically we recommend an Editors' Choice winner and two runners-up. Current recommendations, however, may have changed from last month's, based on the present lineup and price changes.

You'll also find *Macworld* Star Ratings and Macworld Lab performance benchmarks for all Mac OS systems shipping as we went to press in late June 1997. You may read about other Mac models in *Macworld* and elsewhere, but those are prototypes not yet available—the only systems rated here are those you can actually buy.

For previously reviewed Mac systems, the summaries reference the issue date and page number of the article. In some cases, such as faster versions of existing Macs, there is no full review and thus no cross-reference. New systems are indicated in the benchmark by the ▶ icon.

OFFICE SYSTEM

EDITORS' CHOICE

★★★/5.5 **PowerCenter Pro 180** This affordable 180MHz Mac is superspeedy and has great features for all tasks. It's our top pick for an office Macintosh. Subtract $100 for the desktop version. Power Computing (512/388-6868): $2274, 604e, 32MB RAM, 1MB cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 16× CD, 2 free drive bays, 3 PCI slots. *Aug 97, p. 48*

★★★/5.9 **Power Macintosh 7300/200** Apple's price cuts make the 7300/200 a great buy. It's a strong performer that's competitively priced and easily expandable. Apple Computer (408/996-1010): $2299, 604e, 32MB RAM, 256K cache, 2MB VRAM (4MB maximum), 2.0GB hard drive, 12× CD, 1 free bay, 3 PCI slots. *May 97, p. 100*

★★★/5.4 **SuperMac J700/180** A bargain Mac with one more PCI slot, one more free drive bay, and more cache than the 7300/200. Umax Computer (510/226-6886): $1795, 604e, 16MB RAM, 512K cache, 2MB VRAM (4MB maximum), 2.1GB hard drive, 8× CD, 2 free drive bays, 4 PCI slots. *May 97, p. 100*

PORTABLE SYSTEM

EDITORS' CHOICE

★★★★/7.2 **PowerBook 3400c/200** It's almost twice as fast as a top-of-the-line Pentium portable yet costs just $500 more. However, the 3400c isn't perfect: it's expensive, it doesn't support multiple monitors, and its CPU isn't upgradable. Apple Computer (408/996-1010): $5495, 603e, 16MB RAM, 2.0GB hard drive, 6× CD, 12.1-inch active matrix LCD, 1 drive bay, 2 PC Card slots. *May 97, p. 50*

★★★/6.1 **PowerBook 1400cs/117** A midrange notebook with an optional CD-ROM drive and a large passive matrix LCD panel. Now more affordable and a better system than the old 5300 series. Apple Computer (408/996-1010): $2000, 603e, 12MB RAM, 750MB hard drive, optional 6× CD, 11.3-inch passive matrix LCD, 1 drive bay, 2 PC Card slots ($3500 model 1400c/117 has active matrix LCD and 1.0GB hard drive). *Jan 97, p. 58*

To the top: The Motorola StarMax 5000/300 MT's speed and features grab an Editors' Choice.

SMALL-OFFICE/HOME-OFFICE SYSTEM

EDITORS' CHOICE

★★★/6.6 **StarMax 5000/300 MT** Motorola's new 300MHz Mac pumps top speed and features into an affordable computer. Consultants and small businesses will enjoy this feature-rich tower. Motorola Computer Group (800/759-1107): $2899, 603e, 32MB RAM, 512K cache, 4MB VRAM (8MB maximum), 4.3GB hard drive, 16× CD, 3 free drive bays, 5 PCI slots, Zip drive. *Sep 97, p. 60*

EDITORS' CHOICE

★★★/6.5 **PowerBase 240** It's slower than the StarMax 5000, but still has a great price/performance ratio. Now offering a $100 rebate. Power Computing (512/388-6868): $1599, 603e, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 2.0GB hard drive, 8× CD, 3 free drive bays, 3 PCI slots. *May 97, p. 100*

★★★/6.1 **Power Macintosh 6500/225** This decent SOHO alternative has cool features—even a Zip drive. But the 225 is hardly upgradable and a bit pricey. Apple Computer (408/996-1010): $1999, 603e, 32MB RAM, 256K cache, 1MB VRAM (1MB maximum), 3.5GB drive, 12× CD, no free drive bays, 2 PCI slots, 33.6-Kbps modem. *Aug 97, p. 52*

EDUCATION SYSTEM

EDITORS' CHOICE

★★★/6.7 **Power Macintosh 5500/225** This all-in-one Mac—available only to schools—is rich in features and performance. Same case, convenience, and price as the old 5400's, but with more power and 3-D capabilities. Apple Computer (408/996-1010): $1999 (only sold to schools), 603e, 16MB RAM, 256K cache, 2MB VRAM (2MB maximum), 2.0GB hard drive, 12× CD, no free drive bays, no PCI slots; Ethernet card, internal stereo speakers, monitor included. *Aug 97, p. 52*

Cool handles, buttons, and levers make it easy to upgrade the Power Macintosh 8600/200.

EDITORS' CHOICE

★★★/6.2 **PowerBase 200** It's fast, *cheap*, and expandable, with 3-D video acceleration. A great buy for cash-strapped schools and students. Take off $100 if you buy this summer. Power Computing (512/388-6868): $1399, 603e, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 2.0GB hard drive, 8× CD, 3 free drive bays, 3 PCI slots. *May 97, p. 100*

IMAGE-EDITING AND 3-D GRAPHICS SYSTEM

EDITORS' CHOICE

★★★/6.4 **PowerTower Pro 225** This expandable tower is ideal for image editing. A multiprocessor-based Mac is faster for some key operations, but the 225 is faster and cheaper. Plus Power Computing's summer sale offers 128MB RAM for a bargain price. Power Computing (512/388-6868): $3495, 604e, 32MB RAM, 1MB cache, 8MB VRAM (8MB maximum), 2.0GB hard drive, 16× CD, 6 free drive bays, 6 PCI slots. *Jun 97, p. 108*

REAL PRODUCTS REAL RATINGS Reviews you can trust: Unlike other publications, Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.
Outstanding ★★★★★ = 9.0–10.0 Very Good ★★★★ = 7.0–8.9 Good ★★★ = 5.0–6.9 Flawed ★★ = 3.0–4.9 Unacceptable ★ = 0–2.9

Macworld LAB TEST

Every Shipping Mac Tested and Rated

To help you make the right buying decision, *Macworld* rerated all shipping Macs according to our new SpeedMark and grouped systems in Professional, Consumer, and Portable categories. New scores have been adjusted proportionally to reflect anticipated technological developments for the following year. Only shipping systems are tested and rated.

Longer bars are better. Editors' Choice winners' names are in red. ► New. An Apple Power Macintosh 7100/80 has a SpeedMark score of 1.0.

Professional Category

	SpeedMark	Star Rating[A]
Apple Computer		
Power Macintosh 7300/180	2.4	★★★/5.8
Power Macintosh 7300/200	2.6	★★★/5.9
Power Macintosh 8600/200	2.7	★★★/6.5
Power Macintosh 9600/200	3.1	★★★/6.7
► Power Macintosh 9600/200MP	2.9	★★★/6.2
Power Macintosh 9600/233	3.3	★★★/6.6
APS Technologies		
MPower 604e200	2.6	★★★/5.9
DayStar Digital		
Genesis MP 800+	3.1	★★★/5.9
► Genesis MP 900+	3.2	★★★/5.7
Motorola Computer Group		
StarMax 4000/200 DT	2.6	★★★/5.2
StarMax 4000/200 MT	2.7	★★★/5.3
Power Computing		
PowerCenter Pro 180	2.9	★★★/6.5
PowerCenter Pro 210	3.2	★★★/6.4
PowerTower Pro 200[B]	NA	★★★/6.6
PowerTower Pro 225	3.4	★★★/6.4
► PowerTower Pro 250	3.6	★★★/6.2
Umax Computer		
SuperMac J700/180	2.7	★★★/5.4
SuperMac S900/180	2.9	★★★/6.5
SuperMac S900/180DP	2.7	★★★/6.4
SuperMac S900/200	3.1	★★★/6.6
SuperMac S900/200DP	2.8	★★★/6.1
SuperMac S900/225	3.1	★★★/6.4
SuperMac S900/233	3.2	★★★/6.5
► SuperMac S900/250	3.5	★★★/6.3
► SuperMac S900/250DP	3.3	★★★/6.2

Consumer Category

	SpeedMark	Star Rating[A]
Apple Computer		
Power Macintosh 4400/200	1.9	★★★/5.5
Power Macintosh 5500/225[C]	2.1	★★★/6.7
► Power Macintosh 6500/225	2.1	★★★/6.1
Power Macintosh 6500/250	2.2	★★★/6.0
► Power Macintosh 6500/275	2.4	★★★/5.9
► Power Macintosh 6500/300	2.5	★★★/5.9
APS Technologies		
MPower 603e180	1.3	★★★/5.0
MPower 603e200	1.7	★★★/5.2
MPower 603e240	1.9	★★★/5.7
Motorola Computer Group		
StarMax 3000/180 DT	1.7	★★★/5.6
StarMax 3000/180 MT	1.8	★★★/5.7
StarMax 3000/200 DT	1.8	★★★/5.6
StarMax 3000/200 MT	1.8	★★★/5.6
StarMax 3000/240 MT	2.2	★★★/6.0
► StarMax 5000/300 MT	2.6	★★★/6.6
Power Computing		
PowerBase 180	1.7	★★★/6.1
PowerBase 200	1.8	★★★/6.2
PowerBase 240	1.9	★★★/6.5
Umax Computer		
SuperMac C500/180	1.7	★★★/5.2
SuperMac C600/200	1.8	★★★/5.1
SuperMac C600/240	1.9	★★★/5.0

Portable Category

	SpeedMark	Star Rating[A]
Apple Computer		
PowerBook 1400c/117[B]	NA	★★★/6.1
PowerBook 1400cs/117[B]	NA	★★★/6.1
PowerBook 1400c/133	NA	★★★/6.2
PowerBook 3400c/180	1.7	★★★★/7.0
PowerBook 3400c/200	NA	★★★★/7.2
PowerBook 3400c/240	2.0	★★★★/7.2

NA = not available. [A]Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.) [B]SpeedMark score unavailable. Vendor did not send system in time for testing. [C]Available only to educational institutions.

EDITORS' CHOICE

★★★/5.9 **Genesis MP 800+** The ultimate Mac system is a new Editors' Choice. It speeds through programs such as Adobe Photoshop and leaves plenty of room for upgrades. DayStar Digital (770/967-2077): $6499, 604e, 32MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 16× CD, 7 free drive bays, 6 PCI slots. *Jun 97, p. 108*

PUBLISHING AND DESIGN SYSTEM

EDITORS' CHOICE

★★★/6.4 **PowerCenter Pro 210** You can't go wrong with this Mac. It costs less than high-end Macs with similar specifications, but it's a bit slower. But now you get 64MB of RAM free. Power Computing (512/ 388-6868): $2395, 604e, 32MB RAM, 1MB cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 16× CD, 2 free drive bays, 3 PCI slots. *Aug 97, p. 48*

EDITORS' CHOICE

★★★/6.4 **PowerTower Pro 225** The fastest single-CPU Mac is great for publishing pros, at a superlow price. Buy this summer, and get free 128MB RAM upgrade. Power Computing (512/388-6868): $3495, 604e, 32MB RAM, 1MB cache, 8MB VRAM (8MB maximum), 2.0GB hard drive, 16× CD, 6 free drive bays, 6 PCI slots. *Jun 97, p. 108*

EDITORS' CHOICE

★★★/6.4 **SuperMac S900/225** Nearly as fast as the PowerTower Pro 225, but with fewer free bays. A solid choice for an expandable, fast Mac. Umax Computer (510/226-6886): $3495, 604e, 32MB RAM, 512K cache, 8MB VRAM (8MB maximum), 2.1GB hard drive, 8× CD, 4 free drive bays, 6 PCI slots. *Jun 97, p. 108*

MULTIMEDIA AND VIDEO-CREATION SYSTEM

EDITORS' CHOICE

★★★/5.9 **Genesis MP 800+** This expandable Mac speeds through multiprocessor (MP)–enabled programs such as Adobe Premiere. Plenty of bays for upgrades. DayStar Digital (770/967-2077): $6499, 604e, 32MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 16× CD, 7 free drive bays, 6 PCI slots. *Jun 97, p. 108*

★★★/6.5 **Power Macintosh 8600/200** A clever case and cool built-in video for novice video creators. Its slow CPU can be improved with upgrades. Apple Computer (408/996-1010): $2999, 32MB RAM, 256K cache, 2MB VRAM (4MB maximum), 2.0GB hard drive, 12× CD, 1 free drive bay, Ethernet card, built-in video. *Aug 97, p. 50* m

The Right Options: What Each Shipping Mac Offers

				SPEED-RELATED FEATURES						MEMORY		
				CPU Type						RAM		
Company	Product	Star Rating[B]	Price[C]	750	604e	603e	CPU Speed	Cache	Bus Speed	32MB	16MB	RAM Slots
Apple Computer	Power Macintosh 9600/233	★★★/6.6	$3499		●		233MHz	512K	46.6MHz	●		12
(408/996-1010)	Power Macintosh 9600/200MP	★★★/6.2	$4199		2		200MHz	512K	50MHz	●		12
	Power Macintosh 9600/200	★★★/6.7	$3199		●		200MHz	512K	50MHz	●		12
	Power Macintosh 8600/200	★★★/6.5	$2999		●		200MHz	256K	50MHz	●		8
	Power Macintosh 7300/200	★★★/5.9	$2299		●		200MHz	256K	50MHz	●		8
	Power Macintosh 7300/180	★★★/5.8	$2099		●		180MHz	256K	45MHz		●	8
	Power Macintosh 6500/300	★★★/5.9	$2999			●	300MHz	512K	50MHz	64MB		2
	Power Macintosh 6500/275	★★★/5.9	$2999			●	275MHz	512K	50MHz	●		2
	Power Macintosh 6500/250	★★★/6.0	$2299			●	250MHz	256K	50MHz	48MB		2
	Power Macintosh 6500/225	★★★/6.1	$1999			●	225MHz	256K	50MHz	●		2
	Power Macintosh 5500/225	★★★/6.7	$1999[G]			●	225MHz	256K	50MHz	●		0
	Power Macintosh 4400/200	★★★/5.5	$1499			●	200MHz	256K	40MHz		●	3[H]
	PowerBook 3400c/240	★★★★/7.2	$5500			●	240MHz	256K	40MHz		●	1
	PowerBook 3400c/200	★★★★/7.2	$5000			●	200MHz	256K	40MHz		●	1
	Power8ook 3400c/180	★★★★/7.0	$4500			●	180MHz	256K	40MHz		●	1
	PowerBook 1400c/133	★★★/6.2	$3200			●	133MHz	128K	33MHz		●	2
	PowerBook 1400cs/117	★★★/6.1	$2000			●	117MHz	none	33MHz		●	2
	PowerBook 1400c/117	★★★/6.1	$1700			●	117MHz	none	33MHz		12MB	2
APS Technologies[J]	MPower 604e200	★★★/5.9	$1899		●		200MHz	512K	40MHz		24MB	3[H]
(813/483-1600)	MPower 603e240	★★★/5.7	$1799			●	240MHz	256K	40MHz		24MB	3[H]
	MPower 603e200	★★★/5.2	$1499			●	200MHz	256K	40MHz		●	3[H]
	MPower 603e180	★★★/5.0	$1199			●	180MHz	none	40MHz		●	3[H]
DayStar Digital[J]	Genesis MP 900+	★★★/5.7	$8499		4		225MHz	512K	45MHz	●		12
(770/267-2077)	**Genesis MP 800+**	★★★/5.9	$6499		4		200MHz	512K	50MHz	●		12
Motorola Computer Group	StarMax 4000/200 MT	★★★/5.3	$2695		●		200MHz	512K	40MHz	●		3[H]
(800/759-1107)	StarMax 4000/200 DT	★★★/5.2	$2495		●		200MHz	512K	40MHz		●	3[H]
	StarMax 5000/300 MT	★★★/6.6	$2899			●	300MHz	512K	50MHz	●		3[H]
	StarMax 3000/240 MT	★★★/6.0	$2195			●	240MHz	512K	40MHz	●		3[H]
	StarMax 3000/200 MT	★★★/5.6	$1695			●	200MHz	256K	40MHz	●		3[H]
	StarMax 3000/200 DT	★★★/5.6	$1495			●	200MHz	256K	40MHz		●	3[H]
	StarMax 3000/180 MT	★★★/5.7	$1395			●	180MHz	256K	40MHz	●		3[H]
	StarMax 3000/180 DT	★★★/5.6	$1249			●	180MHz	256K	40MHz		●	3[H]
Power Computing[J]	PowerTower Pro 250	★★★/6.2	$3995		●		250MHz	1MB	50MHz	●[K]		8
(512/388-6868)	**PowerTower Pro 225**	★★★/6.4	$3495		●		225MHz	1MB	45MHz	●[K]		8
	PowerTower Pro 200	★★★/6.6	$3195		●		200MHz	1MB	50MHz	●[K]		8
	PowerCenter Pro 210	★★★/6.4	$2674		●		210MHz	1M8	60MHz	●[L]		4
	PowerCenter Pro 180	★★★/6.5	$2274		●		180MHz	1MB	60MHz	●		4
	PowerBase 240	★★★/6.5	$1599			●	240MHz	256K	40MHz		●	3
	PowerBase 200	★★★/6.2	$1399			●	200MHz	256K	40MHz		●	3
	PowerBase 180	★★★/6.1	$999			●	180MHz	256K	40MHz		●	3
Umax Computer	SuperMac S900/250DP	★★★/6.2	$6495		2		250MHz	512K	50MHz	●		8
(510/226-6886)	SuperMac S900/250	★★★/6.3	$3795		●		250MHz	512K	50MHz	●		8
	SuperMac S900/233	★★★/6.5	$2995		●		233MHz	512K	46.6MHz	●		8
	SuperMac S900/225	★★★/6.4	$3495		●		225MHz	512K	45MHz	●		8
	SuperMac S900/200DP	★★★/6.1	$3295		2		200MHz	512K	50MHz	●		8
	SuperMac S900/200	★★★/6.6	$2595		●		200MHz	512K	50MHz	●		8
	SuperMac S900/180DP	★★★/6.4	$2995		2		180MHz	512K	51.4MHz	●		8
	SuperMac S900/180	★★★/6.5	$2595		●		180MHz	512K	51.4MHz	●		8
	SuperMac J700/180	★★★/5.4	$1795		●		180MHz	512K	45MHz		●	8
	SuperMac C600/240	★★★/5.0	$1695			●	240MHz	256K	40MHz		●	2
	SuperMac C600/200	★★★/5.1	$1295			●	200MHz	256K	40MHz		●	2
	SuperMac C500/180	★★★/5.2	$1095			●	180MHz	256K	40MHz		●	2

Editors' Choice winners in red. ● = yes; NA = not available. [A] All include one ADB, two serial, one external SCSI-1, two 16-bit stereo I/O, and one Mac video port unless otherwise noted. [B] Based on feat Star Digital, Power Computing, and PowerTools prices are direct. [D] All systems without on-board video come with a PCI video card installed. [E] Accepts short (7-inch) cards only. [F] Allows only one drive to available [K] Summer sale offers free 128MB RAM upgrade. [L] Summer sale offers free 64MB RAM upgrade. [M] Low-profile desktop configurations (no free drive bays) are available for $100 less.

	VIDEO DISPLAY			STORAGE							EXPANSION [A]					COMMUNICATIONS	
				Hard Drive		CD-ROM Drive						Internal Bus					
AM d/max)	On-board Circuitry [D]	3-D Circuitry	Free Bays	1.0GB–1.9GB	2.0GB–2.9GB	16×	12×	8×	Zip Drive	Case	PCI Slots	Ultra SCSI	SCSI-2	SCSI-1	EIDE	Modem	Ethernet
B/8MB			2		4.0GB		●			tower	6		●				●
B/8MB			2		4.0GB		●			tower	6		●				●
B/8MB			2		4.0GB		●			tower	6		●				●
B/4MB	●		1		2.0GB		●		●	tower	3		●				●
B/4MB	●		1		2.0GB		●			desktop	3		●				●
B/4MB	●		1		2.0GB		●			desktop	3		●				●
B/2MB	●	●	0		4GB		●		●	tower	2 [E]				● [F]		●
B/2MB	●	●	0		4GB		●		●	tower	2 [E]				● [F]		●
B/2MB	●	●	0		4GB		●		●	tower	2 [E]				● [F]		●
B/2MB	●	●	0		3.5GB		●		●	tower	2 [E]				● [F]		●
B/1MB	●	●	0		2.0GB		●			all-in-one	0				● [F]		●
B/4MB	● [I]		0	1.2GB				●		desktop	2				●		●
B/1MB			1		3.0GB		●			portable	1					●	●
B/1MB			1		2.0GB					portable	1					●	●
B/1MB			1	1.3GB						portable	1					●	●
B/1MB			1	1.0GB				6×		portable	0						
B/1MB			1	750MB				6×		portable	0						
B/1MB			1	750MB						portable	0						
B/4MB	● [I]		4		2.5GB	●			option	tower	5			●	●	option	option
B/4MB	● [I]		5		2.5GB	●			option	tower	5			●	●	option	option
B/4MB	● [I]		3	1.2GB		●			option	desktop	3			●	●	option	option
B/4MB	● [I]		3	1.2GB		●			option	desktop	3			●	●	option	option
B/4MB			7		2.0GB			●		tower	6		●				●
B/4MB			7		2.0GB			●		tower	6		●				●
B/4MB	●		3		2.5GB			●		tower	5			●	●		●
B/4MB	●		1	1.2GB				●		desktop	3			●	●		●
B/8MB	●	●	3		4.3GB	●			●	tower	5			●	●	●	●
B/4MB	●		4		2.5GB			●		tower	5			●	●	●	
B/4MB	●		4		2.5GB			●		tower	5			●	●	●	
B/4MB	●		4	1.2GB				●		desktop	3			●	●	●	
B/4MB	●		4		2.5GB			●		tower	5			●	●	●	
B/4MB	●		4	1.2GB				●		desktop	3			●	●	●	
B/8MB			6		2.0GB	●			option	tower	6		●				●
B/8MB			6		2.0GB	●			option	tower	6		●				●
B/8MB			6		2.0GB	●			option	tower	6		●				●
B/4MB	●	●	2		2.0GB	●			option	tower [M]	3	●	●				●
B/4MB	●	●	2		2.0GB	●			option	tower [M]	3	●	●				●
B/4MB	●	●	3		2.0GB		●		option	tower [M]	3		●		●	option	
B/4MB	●	●	3		2.0GB		●		option	tower [M]	3		●		●	option	
B/4MB	●	●	3	1.2GB				●	option	tower [M]	3		●		●	option	
B/8MB			4		2.1GB			●	●	tower	6		●				100BaseT
B/8MB			4		2.1GB			●	●	tower	6		●				100BaseT
B/8MB			4		2.1GB			●		tower	6		●				●
B/8MB			4		2.1GB			●		tower	6		●				●
B/8MB			4		2.1GB			●		tower	6		●				●
B/4MB			4		2.1GB			●		tower	6		●				●
B/4MB			4		2.1GB			●		tower	6		●				●
B/4MB			4		2.1GB			●		tower	6		●				●
B/4MB			2		2.1GB			●		desktop	4		●				●
B/1MB	●		2	1.2GB				●		tower	3		●		●	●	●
B/1MB	●		2	1.2GB				●		tower	3		●		●	●	
B/1MB			2	1.0GB				●		desktop	2		●		●	●	

ementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.) [C] Apple, Motorola, and Umax prices are company estimates; APS Technologies, Day-
ected. [G] Available only to educational institutions. [H] Uses 3.3-volt DIMMs, which are not compatible with other Macs' 5V DIMM slots. [I] Has only a VGA video connector. [J] Other configurations are

Macworld SPEEDMARK

Inside the New SpeedMark Scores

WITH THIS ISSUE, MACWORLD LAB introduces a new set of system benchmarks tuned for today's high-performance Macintoshes. These new tests show the real-world performance of today's Macs using a wide range of software common to Mac professionals.

Real-World Benefits The tests are real-world, which means that they work the Mac the same way users do: running actual tasks, not some program that spends a few seconds making calculations that may have nothing to do with how your Mac system performs overall. The SpeedMark tests, by contrast, take about seven hours to run on a 200MHz PowerPC 604e–based Mac.

Another advantage of the real-world approach versus competing isolative tests is that Mac makers can't tune their Macs to get better SpeedMark scores unless they make the systems actually run better. With isolative tests, it's easier to get a higher score that doesn't translate into user experience, as several system makers have admitted.

The SpeedMark tests show you how systems compare in four key areas: CPU-intensive work, which forms the bulk of most programs' operations; FPU-intensive work, which shows performance for 3-D, scientific, and other analytic or modeling programs; disk-intensive work, which shows how well the Mac's hard drive feeds data to the rest of the system (a fast CPU is easily hobbled by a slow hard drive); and video-intensive, which shows the video system's speed.

Our holistic tests show how the *entire* Mac system performs, not just isolated components. After all, you work with your entire Mac every day. That's where the SpeedMark score comes in. It takes all of our tests and assigns each a different weight depending on how representative it is of a real-world environment; the SpeedMark is a composite of those results. It's the one number you can use to compare any Mac from any Mac maker, no matter what kind of work you do. Use the CPU, FPU, disk, and video numbers to understand the trade-offs among systems you're considering, but trust the SpeedMark score as the final word for performance.

Note that the SpeedMark results are not comparable to those of our previous tests, but you can divide any of our Overall Scores published since January 1996 by 2.9 to get a roughly equivalent SpeedMark score.

KEVIN CANDLAND

The Lab Team from left: Mac Superguide editor Allyson Bates; lab director Lauren Black; analysts Matt Clark, Mark Hurlow, Jeff Sacilotto, and Susan Silvius; and inventory controller Paul Brown.

Behind Our Tests Created by Mark Hurlow, a Macworld Lab senior technical analyst who has developed systems tests for ten years, the SpeedMark tests cover 54 tasks in 15 PowerPC-native programs and the Finder. The programs are Adobe Illustrator 6.0, Photoshop 4.0, and Premiere 4.2; Claris FileMaker Pro 3.0 and ClarisWorks 4.0; Macromedia FreeHand 7.0 and SoundEdit 2.0; MetaCreations Infini-D 3.5 and Painter 4.0; Metrowerks CodeWarrior 10; Microsoft Excel 5.0 and Word 6.0; QuarkXPress 3.3; Waterloo Maple V 4.0; and Wolfram Research Mathematica 3.0.

Our SpeedMark tests are automated, thanks to the use of Binary Software's KeyQuencer 2.1, a Power Mac program that accurately counts the time for each test and removes any time it spends recording. We nonetheless run every test three times (restarting the program before each trial), since some programs use cache files and other techniques to improve performance the more often they run a type of task—improving themselves to match your work. The three iterations create a safety cushion by having sufficient data so that we can spot any odd results.

We configure all Macs with 32MB of RAM so they can run memory-intensive programs such as Photoshop and Painter without resorting to the hard disk, which slows performance. We've optimized our file sizes for that amount of RAM.

We run the SpeedMark tests under Mac OS 7.6.1. (Mac OS 8 was not shipping when we retested, although we will move to Mac OS 8 after it has been field-tested and any bugs fixed.) We leave installed any performance enhancements the Mac maker might include, such as Connectix's Speed Doubler, since those affect everyday performance.

We set the system disk cache to 512K—enough for most programs, but not so large that it makes the Mac access the hard drive often, which slows overall performance. This number is lower than the standard setting on most Macs, since programs such as Photoshop slow down under the default settings.

Our standard test configuration also includes a monitor set at 832-by-624-pixel resolution displaying thousands of colors (16-bit color). We use whatever hard drive the Mac system comes with, as different hard drive makes can affect performance on otherwise identical systems. m

YOU GET THE DISC FREE

when you subscribe and save 60%

Macworld

Macworld Clip Art CD
containing an extensive collection of clip art images, digital stock photos and fonts.
FREE!

JOIN US and GET IT ALL:

❑ One year—12 issues $24.00. **SAVE 60%!**
❑ Two years—24 issues $39.97. **SAVE 67%!**

NAME (PLEASE PRINT)

COMPANY

ADDRESS

CITY STATE ZIP

E-MAIL

❑ Bill Me. ❑ Payment Enclosed.

Check us out at www.macworld.com

Please allow 6-8 weeks for delivery of your first issue. Foreign orders add $70 postage. Mexican and Canadian orders add $18 postage.

4FQU7

Rush my
FREE Clip Art CD!

NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 1167 BOULDER CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld
SUBSCRIPTION DEPARTMENT
PO BOX 51666
BOULDER CO 80323-1666

Macworld LAB TEST

Performance Showdown: Every Mac Tested

Use the SpeedMark number to compare systems' total real-world performance against each other, rather than try to keep track of different PowerPC CPUs and different megahertz numbers. Use the results in the CPU, FPU, Disk, and Video categories to see how the major subsystems' performance compares. We tested all shipping Macs available as well as prototypes of several systems planned for release this summer. Note that Apple was unable to provide any PowerBook 1400's or the 3400c/200 for testing under the SpeedMark tests, Power Computing was unable to supply a PowerTower Pro 200, and PowerTools was unable to provide any systems.

Best overall performance. Longer bars are better. Bold indicates best result in a specific test. Editors' Choice winners are in red. ▶New system.

An Apple Power Macintosh 7100/80 has a SpeedMark score of 1.0.

Shipping Macs	SpeedMark	CPU	FPU	Disk	Video	Star Rating*
▶ Power Computing PowerTower Pro 250	3.6	**3.9**	**3.8**	2.5	**7.6**	★★★/6.2
▶ Umax SuperMac S900/250	3.5	3.8	3.7	2.5	7.3	★★★/6.3
Power Computing PowerTower Pro 225	3.4	3.6	3.4	2.3	7.2	★★★/6.4
▶ Umax SuperMac S900/250DP	3.3	3.5	3.3	2.6	6.6	★★★/6.2
Apple Power Macintosh 9600/233	3.3	3.5	3.4	2.3	6.9	★★★/6.6
▶ DayStar Genesis MP 900+	3.2	3.3	2.8	**2.9**	6.1	★★★/5.7
Umax SuperMac S900/233	3.2	3.4	3.4	2.0	6.9	★★★/6.5
Power Computing PowerCenter Pro 210	3.2	3.4	3.2	2.4	4.3	★★★/6.4
Apple Power Macintosh 9600/200	3.1	3.3	3.1	2.3	6.7	★★★/6.7
Umax SuperMac S900/225	3.1	3.3	3.3	2.0	6.8	★★★/6.4
DayStar Genesis MP 800+	3.1	3.1	2.8	**2.9**	6.2	★★★/5.9
Umax SuperMac S900/200	3.1	3.2	3.1	2.0	7.1	★★★/6.6
Power Computing PowerCenter Pro 180	2.9	3.1	2.9	2.3	4.1	★★★/6.5
Umax SuperMac S900/180	2.9	3.0	2.8	2.0	6.5	★★★/6.5
▶ Apple Power Macintosh 9600/200MP	2.9	3.0	2.8	2.1	5.9	★★★/6.2
Umax SuperMac S900/200DP	2.8	3.0	2.8	1.9	6.2	★★★/6.1
Apple Power Macintosh 8600/200	2.7	3.0	2.9	1.9	3.6	★★★/6.5
Umax SuperMac S900/180DP	2.7	2.9	2.6	1.9	6.1	★★★/6.4
Motorola StarMax 4000/200 MT	2.7	3.0	2.9	1.9	3.0	★★★/5.3
Umax SuperMac J700/180	2.7	2.9	2.7	1.5	5.5	★★★/5.4
▶ Motorola StarMax 5000/300 MT	2.6	2.8	2.5	2.1	4.0	★★★/6.6
Apple Power Macintosh 7300/200	2.6	2.9	2.9	1.6	3.6	★★★/5.9
APS MPower 604e200	2.6	2.9	2.9	1.7	3.0	★★★/5.9
Motorola StarMax 4000/200 DT	2.6	2.9	2.8	1.6	3.0	★★★/5.2
▶ Apple Power Macintosh 6500/300	2.5	2.7	2.5	1.9	3.3	★★★/5.9
▶ Apple Power Macintosh 6500/275	2.4	2.6	2.3	2.0	3.4	★★★/5.9
Apple Power Macintosh 7300/180	2.4	2.7	2.6	1.5	3.3	★★★/5.8
Apple Power Macintosh 6500/250	2.2	2.3	2.1	1.8	3.1	★★★/6.0
Motorola StarMax 3000/240 MT	2.2	2.3	2.1	1.8	3.0	★★★/6.0
▶ Apple Power Macintosh 6500/225	2.1	2.2	2.0	1.8	3.1	★★★/6.1
Apple Power Macintosh 5500/225**	2.1	2.2	2.0	1.8	3.1	★★★/6.7
Apple PowerBook 3400c240	2.0	2.1	2.1	1.6	2.3	★★★★/7.2
Power Computing Power8ase 240	1.9	2.1	1.9	1.6	2.4	★★★/6.5
Umax SuperMac C600/240	1.9	2.0	2.0	1.7	2.1	★★★/5.0
Apple Power Macintosh 4400/200	1.9	2.0	1.8	1.7	2.6	★★★/5.5
APS MPower 603e240	1.9	2.1	2.0	1.4	1.7	★★★/5.7
Power Computing Power8ase 200	1.8	1.9	1.8	1.5	2.4	★★★/6.2
Motorola StarMax 3000/200 MT	1.8	2.0	1.9	1.6	1.7	★★★/5.6
Motorola StarMax 3000/180 MT	1.8	1.9	1.8	1.6	1.7	★★★/5.7
Umax SuperMac C600/200	1.8	1.9	1.8	1.6	2.0	★★★/5.1
APS MPower 603e200	1.7	1.9	1.8	1.3	1.7	★★★/5.2
Power Computing PowerBase 180	1.7	1.8	1.7	1.5	2.3	★★★/6.1
Umax SuperMac C500/180	1.7	1.8	1.7	1.4	1.9	★★★/5.2
Motorola StarMax 3000/180 DT	1.7	1.8	1.8	1.4	1.7	★★★/5.6
Apple PowerBook 3400c/180	1.7	1.8	1.7	1.4	2.0	★★★★/7.0
APS MPower 603e180	1.3	1.4	1.3	1.2	1.4	★★★/5.0
Prototype Macs						
▶ Power Computing PowerTower Pro G3/275	5.1	**5.9**	**5.2**	2.8	**9.4**	not shipping
▶ Umax SuperMac S910/250	3.8	3.9	3.7	**3.1**	7.2	not shipping
▶ Umax SuperMac C600x/280	2.5	2.7	2.5	2.1	1.6	not shipping
▶ Umax SuperMac C600x/240	2.2	2.4	2.5	1.6	2.4	not shipping

*Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.) **Available only to educational institutions.

Behind Our Tests

For detailed information on systems benchmarks, see story at left.—Macworld Lab testing supervised by Mark Hurlow

LACIE LIMITED

your trusted storage source, and now a lot more...

Advanced aperture grille technology provides a uniform, brighter image with a more accurate color display.

0.28mm dot pitch provides super image detail with negligible distortion, significantly decreasi eye strain.

1600 x 1200 pixels at 75 maximum resolution provid flicker-free detail for precis image viewing and manipulation.

Diamondtron™ technology maintains 40% greater sharpness on the picture perimeter, delivering unsurpassed edge to edge focus.

21" tube with expansive 19.7 diagonal viewing area accommodates 2 page spreads for pre press and design work.

Quality optics and anti-glare/anti-stati coatings assure that the **electron21** will retain its amazing image quality for years of continual use.

28 on-screen image controls accessed via a front-mounted control panel – includes one-touch auto calibration and moire cancellation.

Macworld TEST CENTRE

MacUser Best Buy

multiple choices

Powerful multimedia applications and faster processors can put the squeeze on yesterdays' storage and display products. Don't let your computer hold you back.

La Cie Limited makes it easy to expand your system's productivity with a multitude of great products. Our **electron21** color monitor, 36 bit color **silverscanner IV** and our award-winning **d2** hard drives and CD-Recordables are designed with a wealth of superior features to make them the best in the business.

La Cie Limited products are engineered to give peak performance as you fit the pieces together

Rugged, all-steel case design is shock-resistant for maximum protection of your valuable data.

Award-winning La Cie Limited **d2** hard drives are at the top of their class for high performance in 2GB to 9GB capacities.

Versatile La Cie Limited **d2** Jaz drives offer easy transfers of 1GB files within an office or to outside service bureaus.

La Cie Limited **d2** DAT drives are the value leaders for archiving and the best solution for your backup storage needs.

The choice of designers and pre-press professionals, La Cie Limited **d2** 4X/6X CD-Recorders are great for inexpensive file distribution.

Includes La Cie Limited Storage Utilities with acclaimed Silverlining™ disk management software, a $99 value... FREE.

Shipped ready for immediate "plug and play" operation as a stand-alone drive or in a space saving stack.

...we fit the pieces together for digital video, multi-media, pre-press and more.

for multimedia

in your unique configuration. Like you, we are after perfect results. That's what has made us the choice of more than 750,000 users for over a decade.

These great products are available right now in hundreds of leading computer reseller outlets across the country and in top mail order catalogs. Power up to the challenge of multimedia.

The choice is yours. The choice is easy. The choice is La Cie Limited.

LACIE LIMITED

8700 SW Creekside Place, Beaverton, OR 97008
Tel: 503 520-9000 • Fax: 503 520-5508
http://www.lacie.com

Circle 52 on reader service card

How To Load A Camera.

12x Zoom Lens with Macro
Equivalent of a 38mm to 460mm zoom on a 35mm camera plus an-inch-away macro. One of the most versatile lenses available on any camera.

450k-pixel Progressive Scan Chip
Sony's advanced CCD technology and special image processing produce a 768x576, 24-bit high quality image.

Removable PC Card Storage
Compatibility with a wide range of computer platforms with standard ATA Type II PCMCIA flash memory card.

Through-the-lens Color LCD Viewfinder
What you see is what you get.

Auto/manual Focus
Full-range automatic for convenience, manual for complete control.

SCSI Interface
Fast image transfer direct from the camera.

JPEG Image Storage
Standard JPEG compression eliminates the need for special software or processing. Compatible with most imaging programs.

Auto or Shutter-Priority
The versatility of a professional camera, the ease of point-and-shoot.

Lithium Ion Battery
For long, dependable use.

In-field review
For instant reassurance that you've got the shot.

Built-in Flash
Automatic setting for simplicity, "flash-on" for fill or "flash off" for none.

Introducing The Portable Digital Still Camera That's Loaded With Features, Not Film.

From the people who started the concept of filmless photography comes the state-of-the-art portable digital camera: the DKC-ID1. It combines the creative control and professional features found in sophisticated film cameras with the immediacy of digital imaging. Digital photography means rapid turnaround, quick return on your investment and a complete digital record. It's easy and immediate. You capture high quality, color-accurate images, then edit, retouch, present, publish or transmit them right from your computer.

PMA 96 DIMA

For more information on picture perfect convenience and quality at a price you can afford call 1-800-472-SONY, ext. ID1 or visit our Web site at http://www.sel.sony.com/SEL/bppg/.

SONY

©1996 Sony Electronics Inc. Reproduction in whole or in part without written permission is prohibited. All rights reserved. Sony is a trademark of Sony.

275MHz Mac Powerhouse

First PowerPC 750 system unveiled

BY TOVA FLIEGEL

Macworld LAB TEST

It's another milestone for the Mac. The first systems using the next-generation PowerPC CPU, officially named the PowerPC 750 and commonly known as the G3 Arthur, are set to arrive by the end of August from Power Computing (512/388-6868, *www.powercc.com*). And Macworld Lab tests show that these PowerPC 750–based machines will be as revolutionary as the first PowerPC 604's, which changed the course of the Macintosh platform nearly two years ago.

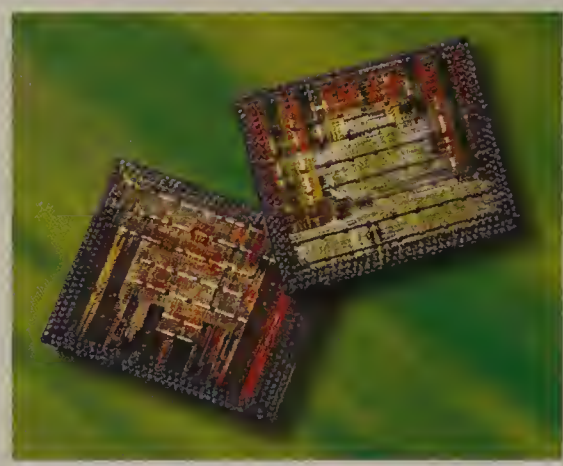
In a Macworld Lab exclusive, we tested a prototype PowerPC 750 machine, the PowerTower Pro G3/275. Powered by a 275MHz CPU, it beat its closest competitor, a 250MHz 604e (also a prototype system), by 34 percent in overall indexed results. That large a spread indicates the PowerPC 750 will raise the performance bar for systems to a new height, thanks largely to that CPU's improved design and new caching scheme.

As for the PowerTower Pro G3, these numbers earn it the title of fastest Mac ever—by a long shot.

The PowerTower Pro G3 even outperformed a 266MHz G3 Motorola system using the Viper motherboard, based on the Common Hardware Reference Platform (CHRP) specification (see "First CHRP System Is Stingingly Fast," *News, Macworld*, June 1997). At that time the Viper was the fastest system we tested, but it's too soon to say how shipping CHRP Macs will stack up against the PowerTower Pro G3, since the Viper was an early prototype that Motorola has no plans to market.

Hard as it is to believe, the new PowerTower Pro would certainly be even faster if it could take advantage of the 66MHz bus speed promised by CHRP. You were probably expecting to see CHRP machines by now (we were), but CHRP, which had been set to arrive in late spring, has been delayed a few months due to complications in the licensing talks between Apple Computer and the other Mac makers.

Thankfully, Power Computing decided not to wait for licensing issues to be settled. Power Computing makes the most of the PowerPC 750 to offer blazingly fast speeds even before CHRP's arrival. The PowerTower Pro G3 does an admirable job of pushing the 50MHz system bus on the Tsunami motherboard to new limits. (Still, if you're hell-bent on absolute speed, you might consider waiting to see how CHRP systems using the PowerPC 750 perform.)



Motorola's 275MHz G3 (aka PowerPC 750) helps power the newest, fastest Mac.

PowerPC 750's Superiority

No question about it: the PowerTower Pro G3/275 gains a slight speed edge simply because the CPU runs at 275MHz—a higher clock speed than that of the fastest (250MHz) 604e currently shipping. But there's a lot more to the story than just megahertz. With its improved design and 0.25-micron circuitry size, the PowerPC 750 can handle more instructions per cycle than previous PowerPC CPUs. Simply put, even on a megahertz-for-megahertz basis, the PowerPC 750 is faster than the 604e and improves overall Mac performance in most operations. (The PowerPC 750 is optimized for integer calculations and not for floating-point operations, so the 604e CPUs still have their place for floating-point–intensive scientific applications, such as rendering and modeling.)

Backside Cache But it's in a revised caching scheme, commonly called *backside cache*, that the PowerPC 750's true speed advantage lies. The PowerPC 604e and 603e CPUs share their external cache bus with main memory, but the 750 has a separate cache bus to handle requests from the CPU independently, which alleviates bottlenecks. (A second G3 processor, the PowerPC 740, does not include connectors for a backside cache.)

Systems makers can choose to implement the 750's backside cache in a 2:1, 3:2, or 1:1 ratio between the CPU speed and cache-bus speed. To avoid long division, let's take a nice round number, such as a 300MHz CPU, as a simple example. A 300MHz PowerPC 750 could use any of three cache-bus speeds: 150MHz (2:1), 200MHz (3:2), or 300MHz (1:1). Of course, in this scenario, the 300MHz cache bus will result in the fastest overall performance, since it means the CPU and cache can communicate with no delays because they operate at the same speed.

The PowerTower Pro G3/275 uses the 1:1 implementation, so the 275MHz

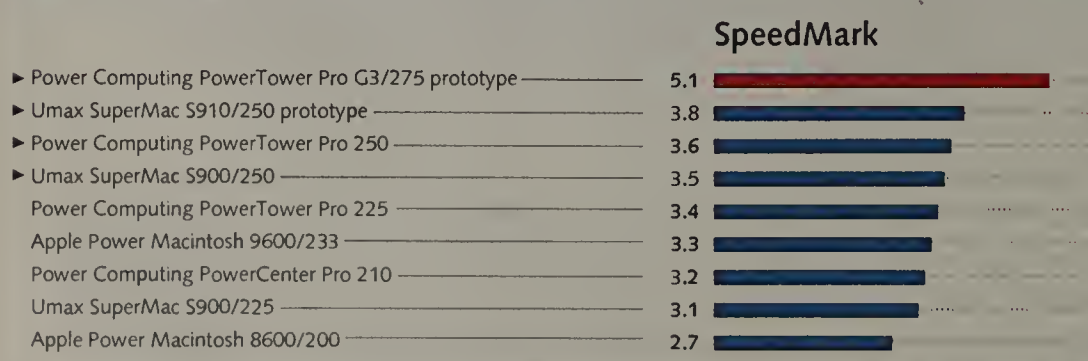
Macworld LAB TEST

PowerTower Pro G3's Mighty Leap

By combining a very fast cache technology and the new PowerPC 750 CPU, Power Computing has accelerated the Mac pace to an unexpected new level. Using the same basic motherboard architecture as in its other PowerTower Pros, Apple's Power Mac 9600 series, and Umax Computer's SuperMac S900 series, Power Computing's prototype 275MHz PowerTower Pro G3 outpaces all other systems by a wide margin—it's 34 percent faster than the nearest competitor. A 300MHz version of the G3 should add even more distance.

Best overall performance. Longer bars are better. Bold indicates best result in a specific test. Editors' Choice winners are in red. ►New.

An Apple Power Macintosh 7100/80 has a SpeedMark score of 1.0.



CPU	FPU	Disk	Video	Star Rating
5.9	**5.2**	2.8	**9.4**	not shipping
3.9	3.7	**3.1**	7.2	not shipping
3.9	3.8	2.5	7.6	★★★/6.2
3.8	3.7	2.5	7.3	★★★/6.3
3.6	3.4	2.3	7.2	★★★/6.4
3.5	3.4	2.3	6.9	★★★/6.6
3.4	3.2	2.4	4.3	★★★/6.4
3.3	3.3	2.0	6.8	★★★/6.4
3.0	2.9	1.9	3.6	★★★/6.5

Behind Our Tests For detailed information on systems benchmarks, see *Mac Superguide*, September 1997.—Macworld Lab testing supervised by Mark Hurlow

CPU accesses the cache at 275MHz, which means the CPU gets access to cached data as fast as it possibly can. And at a full megabyte, the cache is heftier than that in many competing systems. (For more details on backside cache, see the diagram, "New Caches Bolster Speed.")

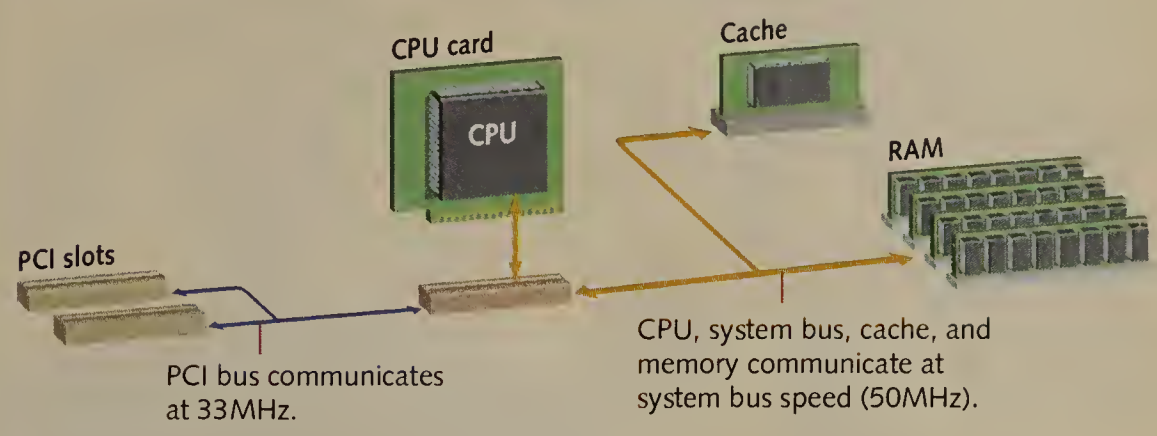
In-line Cache Other Mac makers are using a slightly different caching scheme, called *in-line cache*, to boost performance. Last month, Umax Computer was the first to announce its in-line caching scheme in the form of the CacheDoubler card for its 603e-based C600 SuperMacs. CacheDoubler raises the C600's cache-bus speed to 80MHz, up from the system-bus speed of 40MHz. By fall, Umax plans to release CacheDoubler for the SuperMac S910, S900, and J700 systems, giving them a full megabyte of in-line cache. CacheDoubler will raise their cache-bus speeds to 100MHz, up from the overall system-bus speed of 50MHz.

In our tests, the prototype S910 with 1MB of standard external cache showed a performance boost of 8 percent over the SuperMac S900/250—a noteworthy improvement. But based on tests of the C600 using in-line cache, we expect to see closer to a 15 percent improvement once CacheDoubler is installed in the S910.

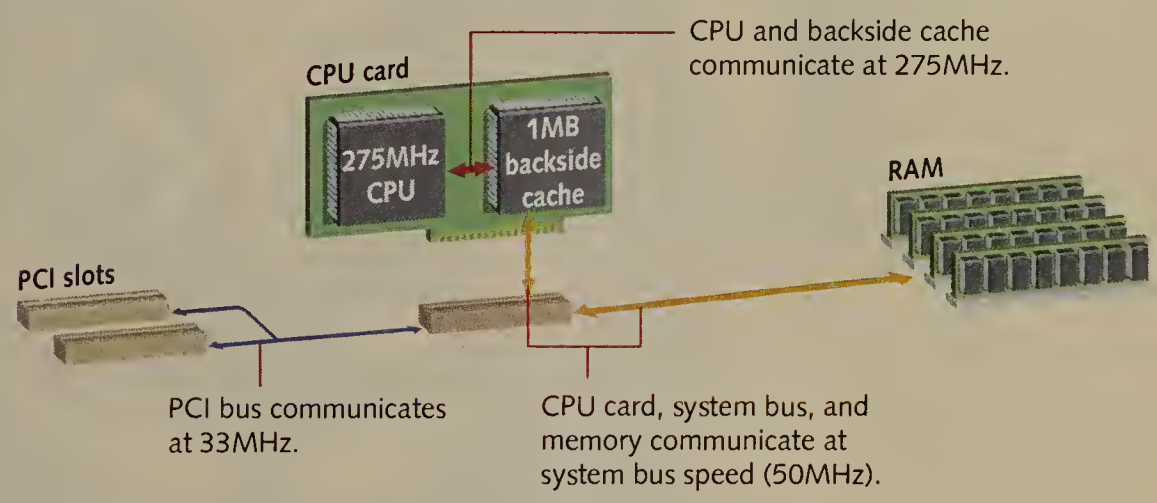
In contrast, the PowerTower Pro G3 benefits from three significant improvements: it uses fast backside cache communicating with the CPU at 275MHz, whereas the PowerTower Pro 250's previous standard external cache communicated at 50MHz; it uses the far-superior PowerPC 750; and the CPU runs at 275MHz, not 250MHz.

NEW CACHES BOLSTER SPEED

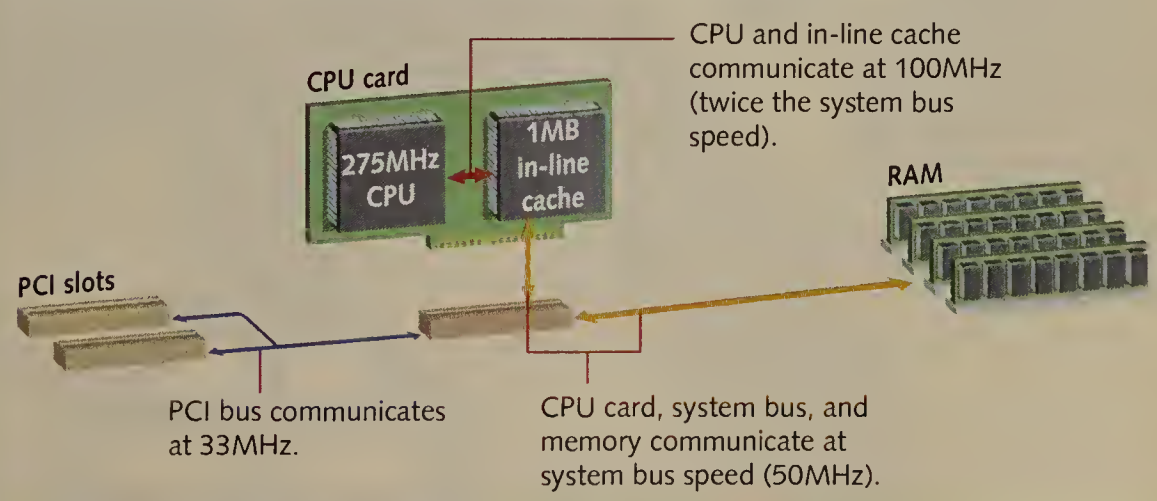
STANDARD CACHE found in most current systems



BACKSIDE CACHE in Power Computing PowerTower Pro G3/275



IN-LINE CACHE in future Umax and other high-end systems



Rounding Out the System

The prototype PowerTower Pro G3 we tested, like today's standard shipping PowerTower systems, came with a 2GB 7200-rpm AV-capable hard drive and an 8MB IXMicro TwinTurbo accelerated video card, which helps explain its top-notch performance in video operations. Power Computing plans to use an even faster video card in the shipping unit that also accelerates 3-D video. The PowerTower Pro G3 also comes standard with Adaptec's 2940 Ultra Wide SCSI card, which helped disk-intensive operations, so users will be getting a more balanced system with the PowerTower Pro G3.

Although we used only 32MB of RAM in our test system, the PowerTower Pro G3 will ship with 64MB of RAM. It offers the same expansion features as the rest of the PowerTower Pro series: nine drive bays (four 5¼-inch and two 3½-inch); six PCI slots; and an upgradable CPU slot, which can use DayStar Digital's dual-processor nPower card. Tentative pricing for the PowerTower Pro G3/275 is $4495; the G3/250 is set for $3995; and a core configuration of the 250, the G3/250c with 32MB of RAM and a 2MB IXMicro video card, is set for $3395. A 300MHz model is likely to be released at the same time as the 275MHz machine. Jaz, Zip, and RAID drives will be optional.

The Last Word

CHRP systems promise to infuse new excitement into the Mac market. In the meantime, Power Computing is offering users the first PowerPC 750 systems, pushing the Tsunami architecture well beyond its perceived limitations. The new PowerTower Pro G3 with its backside-cache implementation is the fastest Mac yet, and well worth consideration by serious users tired of waiting for CHRP's arrival. m

TOVA FLIEGEL is all out of breath from covering systems for *Macworld*.

A
MITS

BY FRANKLIN N. TESSLER

Mac OS 8 Arrives

APPLE DELIVERS ITS STRONGEST UPGRADE IN YEARS

REMEMBER COPLAND, the jazzy new operating system that was supposed to make you forget about Windows 95? When Apple killed Copland last summer, no one knew how many of its features—if any—would ever make it to the desktop. At long last, though, there's good news for Macintosh aficionados: Mac OS 8, formerly known by the code name Tempo, and scheduled to appear in late July, offers plenty to cheer about.

While it doesn't include every whiz-bang feature that Copland promised (see the table, "Copland No-Shows"), Mac OS 8 is the most comprehensive update to the Mac OS in years, sporting a bold new look, a speedier Finder, more shortcuts, and integrated Internet functions. (Mac OS 8 runs only on Macintoshes with 12MB of physical RAM and 68040 or PowerPC processors, however. The 68030-based Macs, even those with PowerPC upgrades, are no longer supported.)

So hang on, and I'll take you on a whirlwind tour through the hottest changes in Mac OS 8. As you read, you can refer to the combination screen shot, "The Mac OS 8 Desktop," and the sidebar, "Tempo's 5 Greatest Hits," which summarizes the most important new features. For an insider's guide to getting the most out of the new OS, check out the two companion stories: "Mac OS 8 Secrets" offers tips for the new OS, and "Best Utilities" reviews essential add-ons for any version of the operating system.

THE MAC'S NEW LOOK

Thanks to its new appearance, you can spot a Mac running OS 8 from across the room. The changes range from purely cosmetic to functional, but all help define a distinctive new Mac personality. (Macintosh users have been able to preview the Mac OS 8 look with a shareware extension called Aaron.) This new version adds a multitude of ways for you to personalize your Macintosh.

• **Desktop Pictures.** A new control panel lets you display your favorite picture on the desktop, with options to scale, center, or tile the image (see the label "Desktop Pictures" on the combination screen shot). And if you'd prefer to stick with desktop patterns, Mac OS 8 provides 40 to choose from.

• **3-D interface.** Some interface changes in Mac OS 8 aren't limited to the Finder. For example, windows, dialog boxes, progress bars, and alerts all sport a bold 3-D motif that jumps out of the screen (see the label "3-D Interface").

• **Appearance settings.** A new control panel lets you select colors for scroll boxes, text highlighting, and progress bars (see the label "Appearance Settings"). The control panel also lets you select a system font; for now, you get to choose between Chicago and a new typeface called Charcoal. You can also specify whether you want the 3-D interface to apply to all applications or only to the Finder. (If you choose the latter, windows and dialogs retain the "old" look.)

TIMESAVING SHORTCUTS

Five new features help you work smarter by cutting down on keystrokes and trips to the menu bar.

• **Contextual menus.** Click on an icon, window, or some text while holding down the control key, and a pop-up menu lets you perform actions that apply to your selection (see the label "Contextual Menu"). For example, if you control-click on the icon for a disk, the menu lets you open, get information about, share, or create an alias for the volume. (As with some of the other changes in Mac OS 8, Windows users got this one first. That's only fair, since some people have accused Microsoft of copying the Mac interface.)

And thanks to a new system extension, contextual menus will work in any application, although software developers will have to recode their software to make use of this feature. This capability is already built into Microsoft Word 6.0, Excel 5.0, and PowerPoint 4.0; Claris FileMaker 3.0; Adobe Photoshop 4.0; and Corel CorelDraw 6.0. It is not yet in QuarkXPress 3.3, ClarisWorks 4.0, or Adobe PageMaker 6.5.

• **Move To Trash and Show Original.** These two new File menu commands let you throw items into the Trash and display the original for a highlighted alias. Both have ⌘-key equivalents, so you can invoke them without lifting your fingers from the keyboard (see the label "New Finder Commands").

• **Drag-and-drop aliasing.** This handy shortcut creates an alias when you drag any item into a window while pressing ⌘-option.

• **Spring-loaded folders and searches.** These navigational tools help to manage desktop clutter (for tips on using them, see the accompanying "Mac OS 8 Secrets" story).

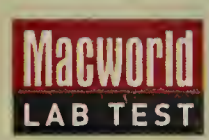
RELIEF FOR BEGINNERS

Using a computer for the first time can be a frustrating experience for anyone, even on a Macintosh. Several features making their debut in Mac OS 8 help smooth the way for novices.

• **Setup assistance.** When you first boot Mac OS 8, a program called Mac OS Setup Assistant walks you through basic System setup procedures, such as setting the computer's name and location and choosing a printer (see the screen shot "Easy Setup"). Even if you're an experienced user, using the Setup Assistant is much less cumbersome than configuring a series of control panels.

• **Revamped Finder menus.** The Label menu is gone, its functions folded into a submenu under the File menu. And a new Help menu puts balloon help and other help commands back with the rest of the Finder's menus, where they're easier to spot (see the label "New Help Menu").

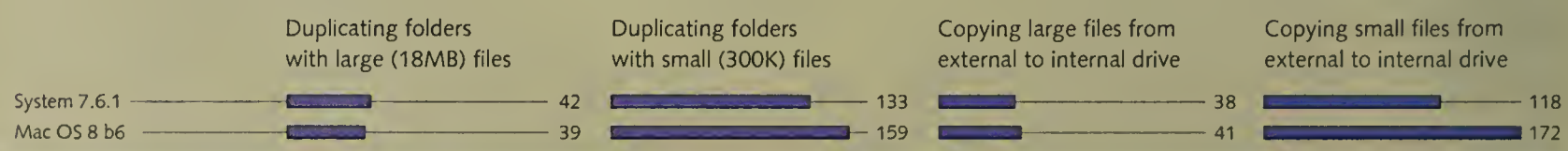
• **Simple Finder.** Another option designed for beginners, Simple Finder lets you simplify the Finder's menus by eliminating nonessential commands such as



How Fast Is Mac OS 8?

One anomaly that we discovered with a late beta of Mac OS 8 is the speed of the newly native Finder. While one would expect it to be faster than System 7.6.1, in fact it was actually slower in most tests. It was only a couple of seconds faster duplicating folders with large files, but it was about a minute slower copying small files from an external drive to an internal one. According to Apple, the new OS is optimized for responsiveness (that is, the speed with which you retain cursor control), not operations.

Results are in seconds. Shorter bars are better.



Behind Our Tests All tests were performed on a Macintosh 7300/200 equipped with 32MB of RAM and a 256K L2 cache, with disk cache set to 512K, and with virtual memory and RAM disk disabled.—**Macworld Lab testing supervised by Mark Hurlow**

The Mac OS 8 Desktop

v Finder Commands
ose who love aliases can now hlight a file and create an as or highlight the alias and d the original.

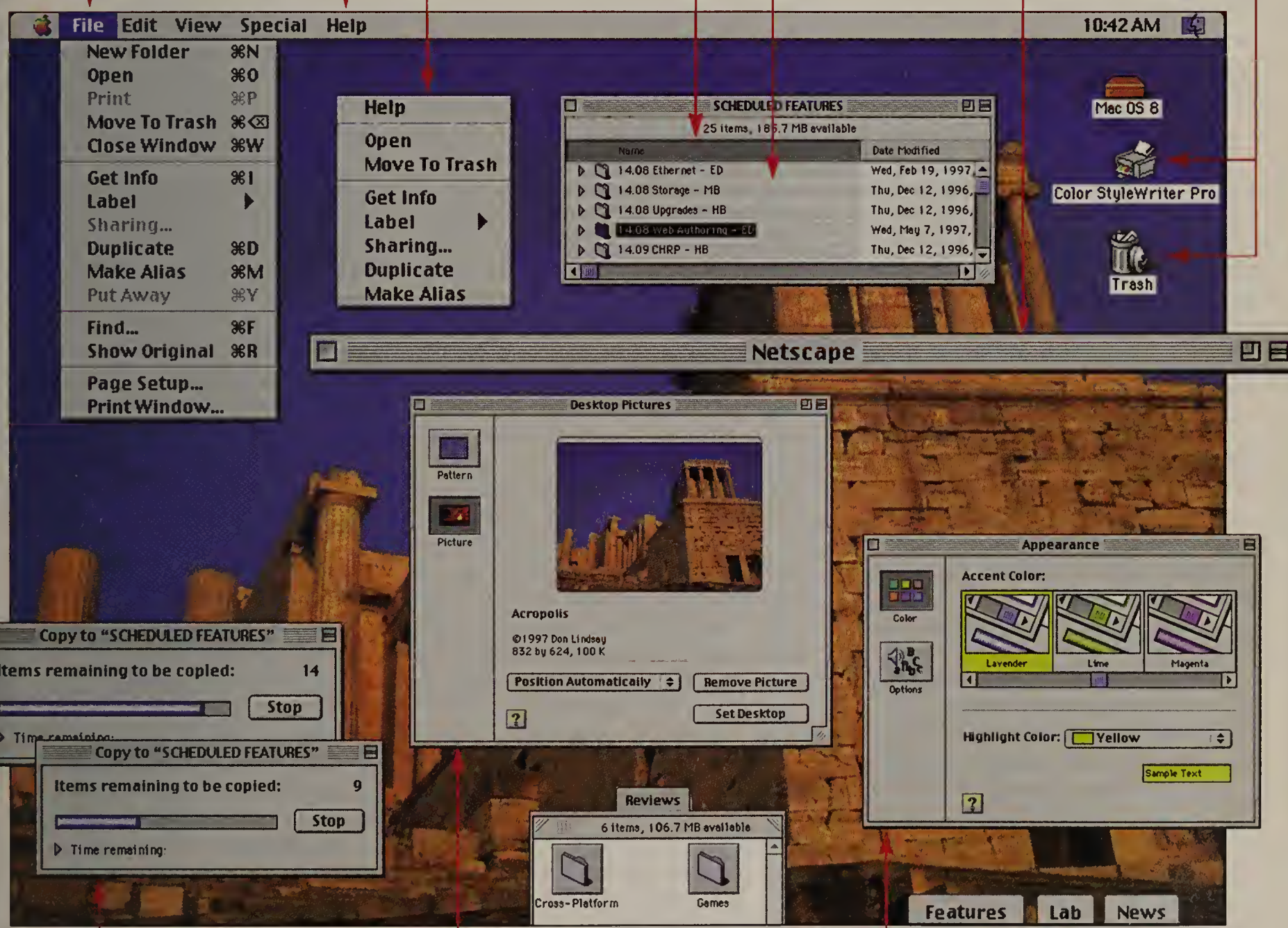
Contextual Menu
Hold down the control key while clicking on an icon, and you'll get an appropriate menu of commands.

Collapsible Windows
The WindowShade control panel has been replaced by a new box on the far right of the title bar.

New Help Menu
For some reason, not enough people associate a question mark with help, so now it's spelled out.

Grid Lines and Shading
List views are now easier to read, thanks to shading between columns and lines between rows.

3-D Interface
No more flat Trash Can or printer icons.



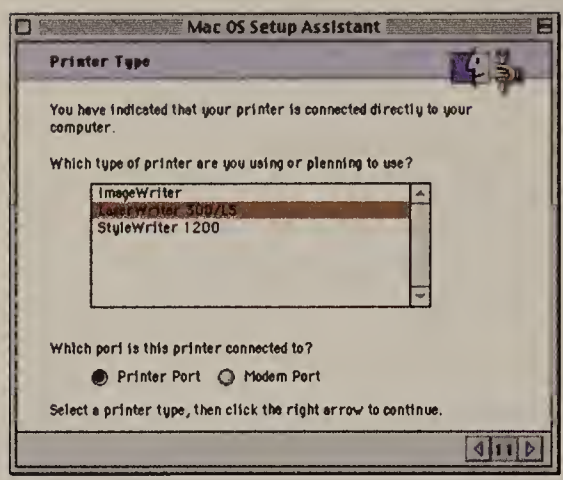
Multithreaded Finder
Now you can launch Finder commands, such as Copy, and go on with your work—or launch more Copy commands.

Button Views
Another way to view folders—they're also accessible with a single click, as with the Launcher command.

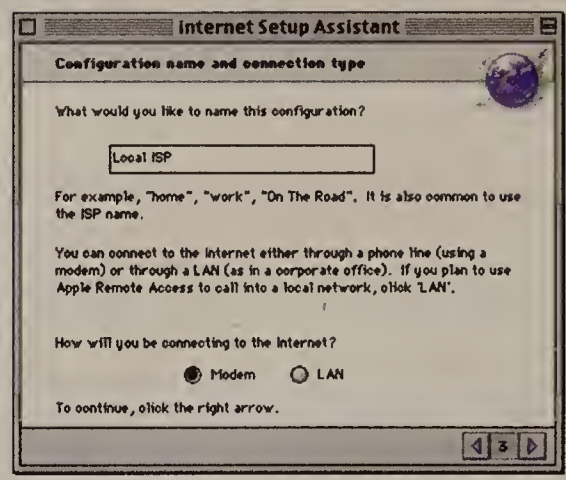
Tabbed Windows
A real space-saver: set your windows as pop-up windows and then drag them to the bottom of the screen.

Desktop Pictures
The patterns are still there, but now you have a lot more choices for your desktop background.

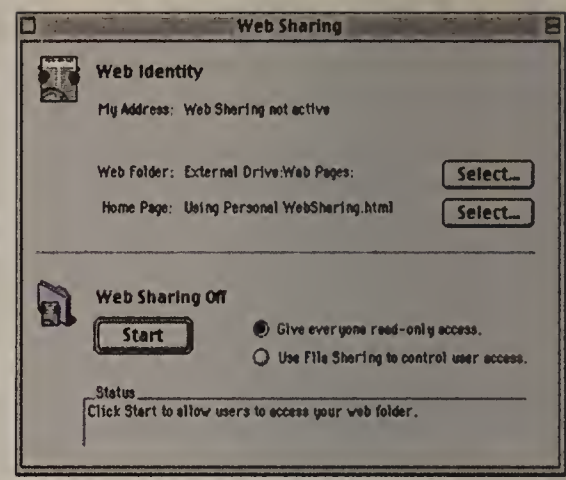
Appearance Settings
Here's your chance to really personalize the look of your Macintosh, with a variety of accent and highlight colors.



Easy Setup The Mac OS Setup Assistant walks you through the configuration of your Macintosh, including printer setup.



Speedy Internet Access Apple hopes to simplify the painful process of signing up with a local Internet service provider.



Your Own Web Server Mac OS 8 includes a way for you to create and store your own personal Web page so your friends can access it.

Make Alias. (You turn Simple Finder on and off in the Finder Preferences dialog.)

• **Sticky menus.** As in Windows 95, menus stay open with a single click: you no longer have to hold the mouse button down.

ENHANCED VIEW OPTIONS

Mac OS 8's Finder gives you more ways to display the contents of volumes and folders. Although some of the new functions were already available with third-party software such as Now Utilities, it's refreshing to see them incorporated into the operating system.

• **Live scrolling.** This updates windows in real time as you drag the scroll box, so you don't need to release the mouse button to see how far you've scrolled.

• **Collapsible windows.** As with the WindowShade control panel in Mac OS 7.6, you can collapse a window by double-clicking on the title bar. A new box at the right side of the title bar serves that purpose, but you only need to click on it (see the label "Collapsible Windows").

• **Button views.** You can display items as buttons that open or launch with a single click, a helpful shortcut for kids or beginners who haven't mastered the art of double-clicking (see the label "Button Views").

• **Tabbed windows.** Drag a window to the bottom of the screen and it turns into a small tab that stays anchored there (see the label "Tabbed Windows"). Click on the tab, and the window pops up. Drag the tab off the bottom, and it turns back into a conventional window.

• **New List views.** In Mac OS 8, all of the Finder's tabular views (view by date, name, and so on) are consolidated under a single View As List command. Horizontal grid lines make it easier to read text across columns, and subtle shading highlights the background of the selected column (see the label "Grid Lines and Shading"). As in the current List view, you can sort the list by clicking on the column headers. And Mac OS 8 lets you show creation and modification dates in relative format, replacing the actual dates with the words *today* and *yesterday*.

• **View controls.** The View Options dialog box—another Windows standard—lets you customize the display options for any window view. In List view, for example, you can specify which columns you want to display. In Icon view, you can tell the Finder to keep items arranged by name, date, size, kind, or label, even when you add or delete files. (Unfortunately, changes apply only to the selected window; there's no way to set view preferences for an entire volume.)

INTEGRATED INTERNET FUNCTIONS

Whether you're a veteran Web surfer or a newbie, Mac OS 8 makes it easier than ever before to go online.

• **Internet Setup Assistant.** Like the Mac OS Setup Assistant, the Internet Setup Assistant simplifies the task of setting up Internet access over a modem or direct connection. If you already have an account, the assistant asks questions about your Internet service provider (ISP) and hardware configuration, and creates a connection protocol for you (see the screen shot "Speedy Internet Access"). If you don't have an ISP, the program automatically logs on to a server that lets you register with one of three national ISPs.

• **Personal Web Sharing.** PWS lets you create your own Web server and share HTML documents and files over the Internet or on a local intranet. To use PWS, you need a continuous TCP/IP

COPLAND NO-SHOWS

Although Mac OS 8 provides some of the features originally planned for Copland, other features will have to wait for future releases of the Mac OS or for next year's Rhapsody release.

Feature	Copland	Mac OS 8
3-D interface	●	●
Advanced find technology	●	○
Multiple user settings	●	○
Native coding	●	●*
Redesigned file and other subsystems	●	○
Open Transport	●	●
OpenDoc	●	●**
Preemptive multitasking	◖	○
Protected memory	●	○
QuickDraw GX	●	●***
Rewritten microkernel	●	○
Spring-loaded folders	●	●

● = *yes;* ◖ = *partly;* ○ = *no.* * *Including Finder.* ** *Maintenance development only.* *** *Ships with Mac OS 8, but no longer under development.*

connection and a static IP address. If you have a suitable Internet connection, PWS is the fastest and easiest way to get your documents online (see the screen shot "Your Own Web Server").

• **Bundled Internet software.** Mac OS 8 ships with two popular Web browsers, Netscape Navigator 3.01 and Microsoft Internet Explorer 3.01, saving you the time and expense of downloading them. Version 3.0 of America Online's software is also included (you still have to pay the monthly fee). And Mac OS 8 comes with the latest release of Cyberdog, version 2.0, Apple's OpenDoc-based suite of Internet tools. (Although Apple has halted OpenDoc development, Cyberdog provides an alternative to third-party Web browsers and Internet clients.)

• **Mac OS Runtime for Java.** Unlike plug-ins, which support Java only within Web browsers, Runtime for Java (RFJ) is a stand-alone program that lets you run Java mini-applications, or applets, on the desktop. (RFJ is also compatible with Macs with 68030 or newer microprocessors running Mac OS 7.5 or later.) Although the process isn't as transparent as launching conventional applications, it's a significant first step. With Java rapidly becoming the lingua franca of desktop computing, this capability should help the Mac maintain a foothold in mixed computing environments.

IMPROVEMENTS UNDERNEATH

Even die-hard Mac supporters admit that the Macintosh Operating System is showing its age after almost 14 years. Although Mac OS 8 still shares much of its code with System 7.6, the new OS sports a few significant internal improvements.

• **PowerPC-native Finder.** The Finder code has finally been rewritten so it's native to the PowerPC (as opposed to 680X0 emulation). To gauge the change, Macworld Lab ran a series of comparisons with System 7.6.1 (see the benchmark, "How Fast Is Mac OS 8?"). Surprisingly, the new Finder is slower, not faster. According to Apple, the OS was optimized for responsiveness, not necessarily the speed of operations. As a result, though Finder operations may not be faster, it will feel as if you're getting back control of the cursor sooner.

• **Multithreading.** The Mac OS 8 Finder can run several threads, or tasks, simultaneously (see the label "Multithreaded Finder"). For instance, you can copy a file while you're launching an application, which means less time waiting and more time working. (Alas, you're still locked out while you're formatting a disk.)

• **Open Transport version 1.2.** Although Apple has committed only to maintaining its networking software, this release provides a host of high-priority bug-fixes. For example, version 1.2 includes protection against Ping o' Death attacks, in which large file packets can render Macs on TCP/IP networks susceptible to crashing (see "A Ping to Die For," *News, Macworld*, February 1997).

• **Backward compatibility.** Despite all the changes in Mac OS 8, Apple has achieved a remarkable level of compatibility with existing software. I used a beta version of the new OS with a wide range of third-party applications and extensions, and didn't encounter any significant conflicts: even tricky extensions such as Now Software's Now Menus seemed to function without major problems. (Inevitably, though, some software will require updates.)

THE LAST WORD

From its bold new look to its multithreaded Finder, Mac OS 8 is the first upgrade in a long time that you'll actually look forward to installing. And the price is right: $69 for 7.6 users and $99 for others. (And if you buy a Mac within 30 days of the July 22 introduction, the cost of upgrading is $9.95 through Apple.) While it's unlikely that Mac OS 8 will convince many Windows users to switch, current Mac fans should find more than enough to keep them from defecting.

Even more promising, Mac OS 8 is only the first of a series of yearly major updates that Apple plans to release at the same time it develops Rhapsody, the Next-based OS, through the end of the century. If you've got a Macintosh that supports the new operating system, you need Mac OS 8. **m**

Contributing editor FRANKLIN N. TESSLER wrote last month's cover story on Power Mac upgrades and has used a Macintosh since Finder 1.1g.

TEMPO'S 5 GREATEST HITS

It's easy to be overwhelmed by the wealth of changes in Mac OS 8. Here are my picks for the top five improvements.

1 SPRING-LOADED FOLDERS

This is my hands-down choice for the best new feature in Mac OS 8. Icons open automatically when you drag an item over them, making it easy to navigate layers of folders. Another plus: double-clicking on a volume or folder icon without releasing the mouse button turns the cursor into a magnifying glass that lets you dig through underlying folders' contents.

2 NEW FINDER MENUS AND VIEWS

The Finder's new menus are more logically arranged than before, and they offer a variety of useful new options and controls, including customizable list views with live scrolling. For beginners, Simple Finder presents a subset of Finder menus with only essential commands.

3 CONTEXT-SENSITIVE POP-UP MENUS

Control-clicking on an item displays a pop-up menu of shortcuts (such as Duplicate and Create Alias) that apply to that item.

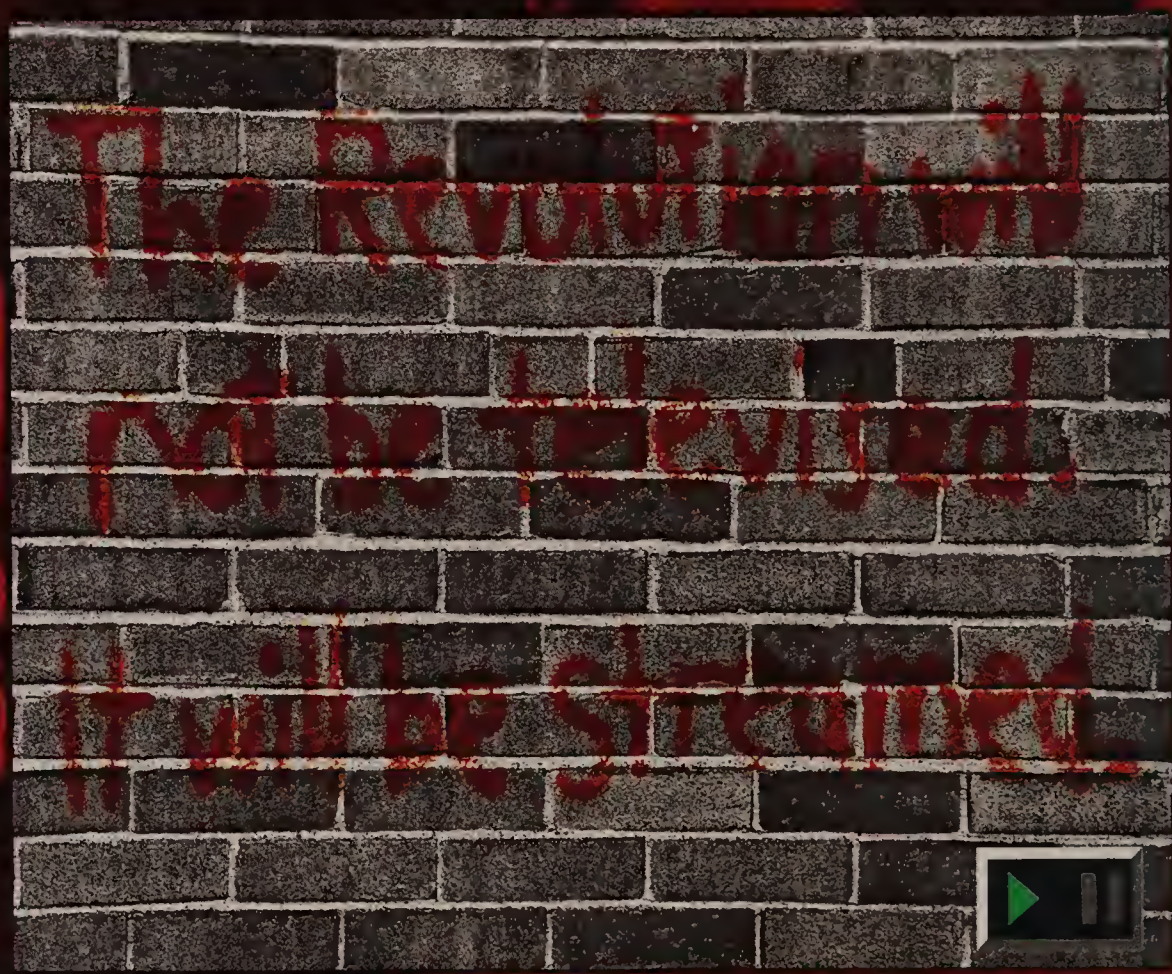
4 MULTITHREADED, POWERPC-NATIVE FINDER

Finally, you're not locked out when you copy a huge file in the Finder. And the Mac OS 8 Finder is faster, too. A surefire winner for people who hate to wait for their Mac.

5 3-D APPEARANCE

OK, so the high-tech look is a bit like Windows 95's, but the old Mac seems ho-hum by comparison. Once you've seen it, you won't want to switch back.

VIVO!



Imagine transmitting video clips of unlimited length around the world. Or just around your office. Imagine how it could change the way you communicate. Introducing VivoActive Producer™ 2.0. Easy to use. Powerful. Compatible with virtually any Web server. And affordable enough for you to explore the potential of streaming video first hand. Ask your favorite reseller about VivoActive Producer 2.0 or download a free trial version right now at www.vivo.com.

Circle 4 on reader service card

BY JOSEPH SCHORR

Mac OS 8 Secrets

MUST-KNOW TRICKS FOR TUNING YOUR NEW OS

THE FIRST thing that you notice about Mac OS 8 is its dramatic new look: gray-scale menus, 3-D–style icons, pretty desktop pictures. But the elegant changes that are introduced in the Macintosh's new operating system are more than cosmetic; along with that sleek, revamped appearance are some key new features—contextual pop-up menus, spring-loaded folders, and pop-up windows—that can make it easier for you to manage files, launch programs, and organize your workspace.

With this redesign, Apple has added many opportunities for you to personalize your Macintosh and make it work the way you want it to work, and to make the files and folders you use most frequently as accessible as possible—if you know where and how to make those easy adjustments. So, now that we've given you the basic rundown on Mac OS 8, here's a collection of mostly undocumented tricks and techniques that will help you get up to speed on this latest batch of operating-system enhancements.

In the coming months, you'll find even more timesaving tips for getting the most out of Mac OS 8 in my *Secrets* column, in Lon Poole's *Quick Tips* column, and in Macworld Online's Tip of the Day newsletter.

MENUS ON DEMAND

Mac OS 8's new contextual pop-up menus provide access to frequently used commands whenever you control-click on an icon, window, or the desktop within the Finder. Granted, most of the options available via these contextual pop-up menus may not seem very significant—for example, who's going to control-click on a folder in order to access the pop-up Open command, when you can simply double-click on the folder instead? In reality, contextual menus provide the fastest, most direct access to several commands that until now involved a lot more effort. Here's the short list of pop-up menu items worth learning and using.

1 Quick change of scenery

There's no need to journey up to the Apple menu to open the Desktop Pictures control panel when you feel the urge to change your desktop picture from Hong Kong At Night to Cancun Sunset; you can get there directly by control-clicking on the desktop and choosing the Change Desktop Background command (see the screen shot "Quick Change").

2 Switch views quickly

You can still use the Finder's View menu to switch between icon, list, and button views, but the same options are available right under your mouse. Just control-click on the desktop or a window (or even the tab of a collapsed pop-up window) to switch views without traveling up to the menu bar.

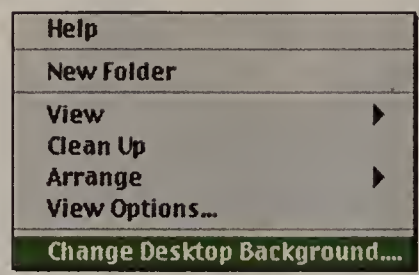
3 Share faster

Contextual menus offer the fastest way to set up file-sharing privileges for a file or folder. Control-click on any file, folder, or volume and choose the Sharing command to go directly to the item's sharing controls.

4 View print queues

If you use Desktop Printing, you can control-click on a desktop printer icon to turn the printer's queue on or off or to change your system's default printer.

Remember that once you have control-clicked to invoke any one of these contextual menus, you can immediately release both the control key and the mouse button; the menu stays open by itself until you click the mouse again.



Quick Change You can redecorate your desktop in record time. Simply control-clicking on the desktop will provide you with quick access to the Change Desktop Background command and take you directly to the Desktop Pictures control panel.

DRILL DEEPER, CLICK LESS

With Mac OS 8's spring-loaded feature, disks and folders pop open automatically whenever you drag items onto them. But you can also take advantage of the convenience of spring-loaded folders when you're *not* dragging items into new locations, thanks to the Finder's new automatic folder-burrowing command.

1 Click and hold

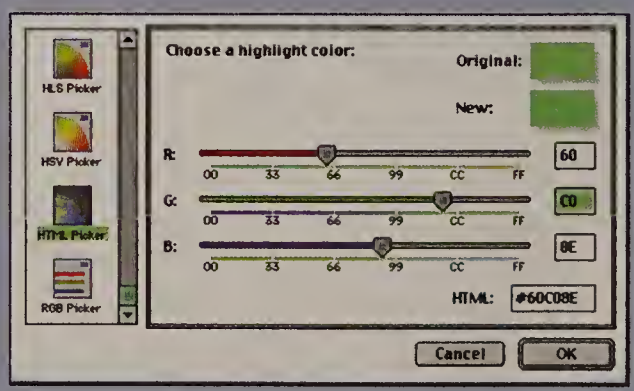
Double-click on a volume or folder icon, holding the mouse button down on the second click—Apple calls this a "click-and-a-half"—and instantly the pointer turns into a magnifying glass. Now any folder you drag over will spring open by itself, even though you're not dragging anything onto it.

THE CHLORINE-ISH GREEN MAC

THE MAC HAS always made it easy to mix your own custom highlight and label colors—and Mac OS 8 gives you even more flexibility in that department. Now you get no fewer than six System-level color pickers that allow you to mix your own highlight, accent, and label colors in the Finder, as well as define custom colors within various applications. The new color pickers include the HTML Picker, which is perfect for Web authoring (see the screen shot "Take Your Pick"). Create the color you want using the three RGB sliders, and the picker displays the proper hexadecimal code to embed in the HTML on your Web page to generate that color.

Most novel, though, is the Crayon Picker, which presents you with a box of 60 crayons in a great variety of premixed colors, such as Spring Frost, Chlorine, Mildew, and Warm Shale (see the screen shot "No Sharpener Needed"). Don't let the crayon-like simplicity of this color picker fool you; it's got a lot of power.

First, if you hold down the mouse button when you drag over the crayons, the color swatches and names change automatically as you move from crayon to crayon so you don't have to click on each one individually. Press the option key, and the pointer turns into an eyedropper with which you can pick up other colors on the crayons, wrappers, or crayon box. Click on the crayon wrappers to see darker tints of existing colors; click on a crayon tip's highlighted left edge to see lighter tints. When you select any of these variations, the names of the colors cleverly change, with the suffix *-ish* added. Pick a darker shade of Mildew, for example, and its name automatically changes to Mildew-ish.



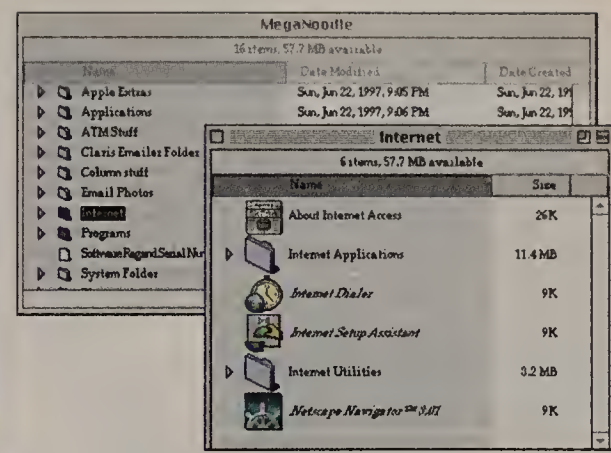
Take Your Pick When you use the sliders to create a color using Mac OS 8's HTML Picker, the HTML field displays the code you must use to re-create that color on your Web pages.

No Sharpener Needed Sixty premixed colors are at your disposal via the Crayon Picker. Hold down the option key and drag across the crayons to see variations on the default colors.

2 Navigate multiple levels

You can burrow through as many folders as you want as long as you keep the mouse button depressed. Moving the magnifying glass out of a window automatically closes it, so you won't end up with a lot of window clutter.

Keep Tabs on Your Work It's easy to switch between pop-up menus with one click if you keep your pop-up windows tall and skinny and your collapsed window tabs widely separated. In this example, one click on the Internet tab will simultaneously collapse the Program window and expand the Internet window.



Points of View In Mac OS 8, you can assign every window its own view options. In this example, the background window is set to display lists with small icons and date columns, while the foreground window displays large icons and the size column.

WINDOW POPPING

Pop-up windows provide easier access to files: you can reduce windows to small tabs that cling to the bottom of the screen until you drag them into view. Here are some tips on how to use them efficiently.

1 Drag to convert

The View menu contains an As Pop-up Window command, but you can save yourself some time by ignoring it. Instead, just drag any window to the bottom of the screen; this allows you to convert the window to a pop-up window, collapse it, and place the window tab exactly where you want it—all in one step.

2 Drag to open

If you want to place an item inside a collapsed pop-up window, there's no need to expand the window first. Just drag a file onto a collapsed window tab, and the window automatically expands for you. Drag the icon back out of the window, and it collapses back into its tabbed state.

3 Close shortcut

When you've finished working with a pop-up window, you can snap it back down to the bottom of the screen by pressing ⌘-W—the same old keystroke you use to close regular windows.

4 Easy resizing

Resize windows containing a lot of items, making them as tall as possible, before turning them into pop-up windows. This way, when you click on the collapsed window's tab, the window expands to reveal as many files as possible—without additional scrolling.

5 Expand with a click

You don't have to collapse one pop-up window to make room for another; the Mac does it for you. Expanding one pop-up window (with a single click on its window tab) automatically collapses the previous window, keeping things neat and tidy. The key to this kind of one-click window switching is to make your windows tall and narrow *before* collapsing them the first time, and then position the window tabs far enough apart so that you'll be able to see (and click on) the collapsed tabs even when another pop-up window is expanded (see the screen shot "Keep Tabs on Your Work").

Until now, the Views control panel has forced you to apply your List and Icon View preferences on a systemwide basis. For example, you could choose to show columns such as label, size, and date in List Views or hide them. You could turn Calculate Folder Sizes on or off. In each case, your settings applied to every List View in the Finder.

All of that has changed with Mac OS 8. Now you can set all such preferences on a *window-by-window* basis. When you choose the View Options command from the Finder's View menu, your List View settings apply only to the currently opened window. This means, for the first time in Mac history, you can set one window to display a List View with small icons, showing the full complement of file info columns, while another window displays large icons with only the Size field visible (see "Points of View").

PULL THE SHADES

The WindowShade control panel is gone, but you can still collapse windows in WindowShade fashion by clicking on the new collapse box that's been added in the upper right corner of each window.

1 Close all windows

Here's the new twist: option-clicking on the collapse box rolls up not only that window, but *every* open window on your screen—a quick way to clean up a cluttered screen quickly without having to close and reopen a lot of windows. (Option–double-clicking anywhere on a window's title bar does the same thing, if you have that option enabled in the Appearance Settings control panel.)

The Last Word

Tapping into these new OS features will convince you that Mac OS 8 is much more than a face-lift; it's a true refinement of the Mac interface that will have you working faster and more efficiently. Before long, you'll wonder how you ever got by without it. **m**

JOSEPH SCHORR is coauthor of *Macworld Mac Secrets*, fourth edition (IDG Books Worldwide, 1997). His hobbies include classical music, biking, and installing Apple system software upgrades.

As in the past, you can switch between the Mac's various color pickers—and even define colors—entirely from the keyboard. When you first access the color-picker window, use the up- and down-arrow keys to move between the six picker icons available in the window's left pane. Once you've selected the picker you want to use, press the tab key to edit the numeric values in any of the color-picker windows (except the Crayon Picker, which doesn't contain any numeric fields). Tabbing through all the fields returns you to the window's left pane again, at which point you can use the arrow keys to switch to another color picker.

BEST UTILITIES

Macworld's top picks for enhancing the newest Mac OS

Now that Mac OS 8 is here, third-party enhancements are obsolete, right? Well, not quite. Despite many advances in the new operating system, one thing hasn't changed: there's still room for improvement, and that's where utilities come in. I canvassed *Macworld*'s editors and contributing editors to find out which utilities they use. I ended up with a collection that spans five key areas: performance, telecommunications, keyboard shortcuts, text management, and organization. These system enhancements will make Mac OS 8—and you—even more efficient and productive. For a firsthand look, check out the demo versions and shareware at *www.macworld.com/more/*.

BY ROBERT C. ECKHARDT

ENHANCED PERFORMANCE

MANY OF US bought a Mac so we wouldn't have to tinker under the hood. But several worthwhile utilities can do some useful tinkering for us.

RAM Doubler 2.0.1 With RAM prices at rock bottom, it makes sense to stock up. Even so, there's a place for RAM Doubler from Connectix, which can triple your installed RAM (up to 256MB).

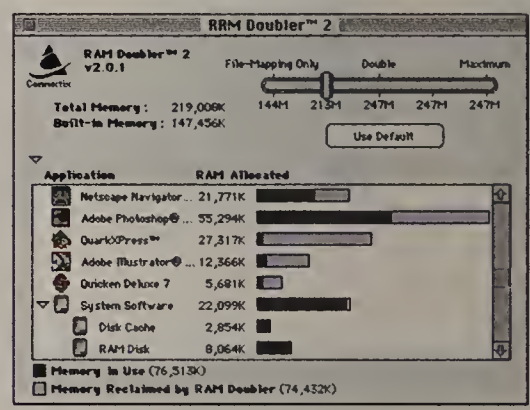
I've found RAM Doubler to be remarkably stable. It can also boost RAM efficiency (see the screen shot "Using RAM Efficiently"). If you have a Power Mac and turn off virtual memory for better performance, the computer automatically turns off file mapping. Consequently all your native applications require more RAM. RAM Doubler turns file mapping back on; native apps once again require less memory and you recover megabytes of real RAM—I recovered a hefty 15MB from my standard suite of Microsoft Excel, Microsoft Word, and Adobe Photoshop.

DiskExpress II 2.21 Some people never defragment their hard drive—and never notice the difference. But if your work involves high-speed input and output, such as audio or video, or if you use Netscape Navigator with its cache option turned on, optimizing, or defragmenting—reuniting the pieces of individual files scattered across a drive—is essential for best performance.

Symantec's recently released Norton Utilities for Macintosh 3.5 contains a major revision of the formerly undistinguished defragmenter Speed Disk. Now Power Mac native, the new Speed Disk defragments selected files as well as entire drives, has a clearer and more comprehensive fragmented-file display, and can organize your defragmented disk for general use (which groups files by type) or for a specific purpose, such as multimedia, software development, or CD-ROM mastering. Symantec also says the new version is up to twice as fast.

If you already own Norton Utilities, you may find Speed Disk adequate. But DiskExpress II from Alsoft has been my first choice for defragmentation for many years.

It watches me as I work; notes which files I use most often; and when it defragments my drive, it tightly clusters the files I use most often, further speeding performance.



Using RAM Efficiently RAM Doubler's control panel shows you how much RAM each running application is using and how the System has allocated RAM to its different functions.

HELP FOR THE TELECOMMUNICATIVE

WITH MOST OF US online these days, utilities that were once the province of a hardy few are now everyday necessities.

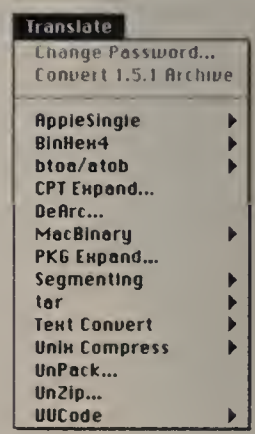
StuffIt Deluxe 4 One such indispensable tool is StuffIt Deluxe from Aladdin Systems. My copy of StuffIt has never met a downloaded file that it didn't like—and decompress without complaint. With companion utilities DropStuff and StuffIt Expander on the desktop, all I have to do is drop a file on the appropriate icon to compress or decompress the file, or I can install a menu that compresses or decompresses highlighted files on command.

As a Netscape Navigator helper, StuffIt Deluxe works quietly in the background, it can create self-extracting files (which you can give to people who don't have a decompression utility), and it's great for archiving no-longer-needed documents as well.

Tex-Edit Plus 2.0.1 Once upon a time I was overwhelmed by e-mail and newsgroup digests that were almost unreadable because of all the line feeds, carriage returns, and oddball characters. Then I got Tom Bender's shareware Tex-Edit Plus. (All the shareware mentioned in this article is available from *www.macworld.com/more/*).

With an unmistakable, don't-mess-with-Texas style, this text editor cleans up untidy e-mail files with a single command and performs more difficult jobs with a dialog box full of cleanup options.

Tex-Edit Plus can also handle text files too big for SimpleText; display previews of graphics files in its Open



Translation Service StuffIt Deluxe 4 can translate virtually any compressed file; several of the compression formats listed in StuffIt's Translate menu are so rare online that I have yet to encounter them.

It can also defragment drives on a user-defined schedule, such as when you're at lunch or during the weekly staff meeting.

Although not yet Power Mac native and rather dated in appearance, DiskExpress II remains my current pick. (An upgrade, DiskExpress Pro, in the works at press time, was scheduled to ship in July; it will be Power Mac native.)

EDITORS' CHOICE

★★★★/7.8 **DiskExpress II 2.21** Intelligently defragments hard drives for optimum performance. **Company:** Alsoft (281/353-4090). **List price:** $89.95.

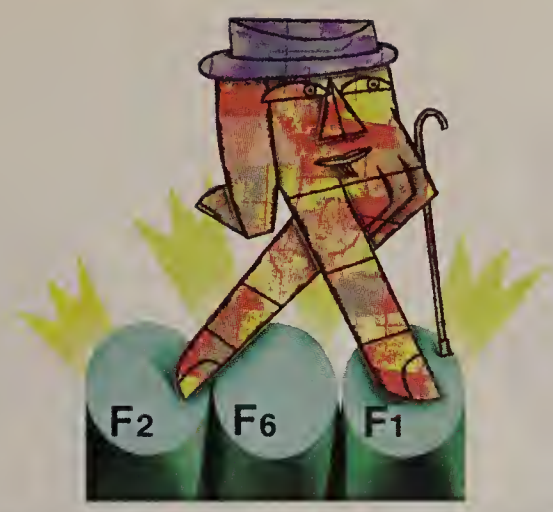
★★★★/8.6 **RAM Doubler 2.0.1** As much as triples your RAM, plus reduces the amount of RAM required by Power Mac–native applications. **Company:** Connectix (415/571-5100, *www.connectix.com*). **List price:** $99.

dialog box; count the words in a selection or document; search for and replace text according to font, size, style, and color; play sounds embedded in files; and even read my e-mail out loud (Texas drawl not included).

EDITORS' CHOICE

★★★★/7.3 **StuffIt Deluxe 4** If you got a file off the Internet, StuffIt can almost certainly decompress it for you. **Company:** Aladdin Systems (408/761-6200, *www.aladdinsys.com*). **List price:** $129.95.

★★★★/7.9 **Tex-Edit Plus 2.0.1** Cleans up messy downloaded text files effortlessly; handles files too large for SimpleText. **Author:** Tom Bender (*members.aol.com/tombb*). **List price:** $10 shareware fee.

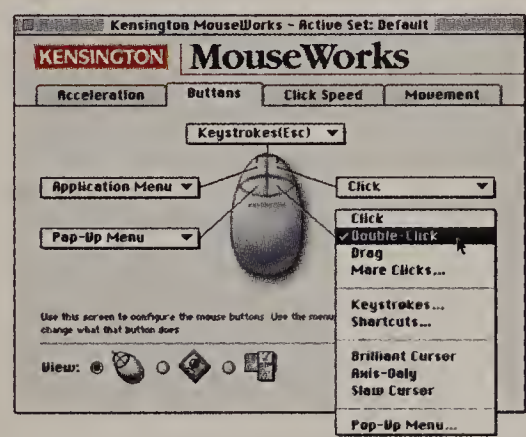


KEYBOARD SHORTCUTS

MINIMIZING MOUSE movements and keystrokes saves you time and can help prevent repetitive-strain injuries.

Kensington MouseWorks 5.02 It's worth buying a mouse or trackball from Kensington Microware just for the software. With Kensington MouseWorks, you can program the buttons on a Kensington input device so that one click—or a click-and-key combination—invokes any of a variety of mouse movements or key commands, calls up a QuicKeys shortcut or a pop-up menu, types predefined text, or opens a menu of active applications (see the screen shot "Mouse-Button Shortcuts").

I use a trackball and a mouse, so being able to define a different speed and acceleration for each is handy. When I press certain modifier keys, MouseWorks slows the cursor to a crawl for precision work or restrains it to horizontal or vertical movements.



Mouse-Button Shortcuts On a Kensington input device, you can define a different function for each individual button, plus the two primary buttons *chorded* (pressed in unison).

QuicKeys 3.5.2 Macros are the classic example of efficient shortcuts. While there are several macro utilities, almost all my *Macworld* colleagues find QuicKeys by CE Software the best compromise between power and ease of use. I use it to enliven my function keys—so they can, for example, launch and switch among applications—and to assign convenient keyboard combinations to commands that lack them, multistep actions, or boilerplate text. You can also use QuicKeys to process multiple files with one keystroke and to create tool bars full of shortcuts. Although still far from perfect—there are many things that it can't do, and it's a major RAM hog—QuicKeys remains the Mac's most useful automation tool.

TypeIt4Me 4.7 Riccardo Ettore's shareware TypeIt4Me takes its cues from shorthand-style abbreviations, automatically converting them into full words, phrases, and even paragraphs (available at *www.macworld.com/more/*).

Once you teach TypeIt4Me what to do, *al* immediately becomes *Abraham Lincoln*, *mw* becomes *Macworld*, and so on. Properly trained, the program can eliminate hundreds or thousands of keystrokes, and it corrects common misspellings. However, I find text expansion occasionally annoying—when I want to write a note to Al, for example, not Abraham Lincoln.

AliasDragger 1.0b1 Perhaps the simplest and most elegant Mac shortcut is found in Leonard Rosenthal's freeware AliasDragger (available from *www.macworld.com/more/*). With AliasDragger installed, I press the control key, click on an icon, and drag it to where I want the alias to appear. The original file stays put; the software creates the alias and deletes *alias* from the name. Couldn't be simpler.

EDITORS' CHOICE

★★★★/7.7 **AliasDragger 1.0b1** Makes alias creation a snap. **Author:** Leonard Rosenthal. **List price:** Freeware.

★★★★/8.3 **Kensington MouseWorks 5.02** Offers superior control over cursor movements and input-device button functions. **Company:** Kensington Microware (415/572-2700, *www.kensington.com*). **List price:** Sold with input devices such as the Thinking Mouse ($109.99) and the Turbo Mouse ($169.95).

★★★★/8.2 **QuicKeys 3.5.2** This is the best—but still imperfect—compromise between power and ease of use in a macro utility. **Company:** CE Software (515/224-1995, *www.cesoft.com*). **List price:** $119.

★★★★/7.5 **TypeIt4Me 4.7** Automatically expands user-defined abbreviations in any application. **Author:** Riccardo Ettore (*72277.1344@compuserve.com*). **List price:** $30 shareware fee.

MORE MANAGEABLE TEXT

DEALING WITH WORDS is what most of us do most often. Consequently we can all reap big benefits from even small improvements in the text-management process.

Adobe Type Manager Deluxe 4.0 After years of watching Symantec's Suitcase and Alsoft's MasterJuggler duke it out for the font-management heavyweight title, Adobe has finally entered the ring with ATM Deluxe 4. Sporting the same high-quality, on-screen display for PostScript fonts as basic ATM (which is free with Adobe type packages and most applications), ATM Deluxe also offers on-screen antialiased fonts, intelligent font substitution (in documents containing fonts you don't have), and Multiple Master font support.

In its new font-management module, grouping fonts in sets is easy, and turning fonts or sets on and off is quite Conflict Catcher–like. ATM's font manager also clearly labels listed fonts as PostScript or TrueType, displays font samples on request, checks for font damage, and if necessary automatically retrieves fonts when you open a document that requires them.

ATM Deluxe has definitely delivered a knockout punch to its rivals.

TypeTamer 1.1.8 and Adobe Type Reunion Deluxe 2.0 For organizing your Font menu, the choice is between ATM's sidekick, Type Reunion Deluxe, and TypeTamer from Impossible Software. Both products cost $60. Both automatically group related fonts into families and let you group font families into sets (by function, type of font, whatever). At the top of the Font menu, Font Reunion shows the most recently used fonts; TypeTamer displays the fonts used in the current document.

Type Reunion can show each font name in its own typeface and it allows you to rename fonts, a handy option to have with Multiple Master fonts. With TypeTamer, I can scroll through the Font menu using the letter keys and display sample text or a complete character set without leaving the menu (see the screen shot "Entering Hard-to-Find Characters").

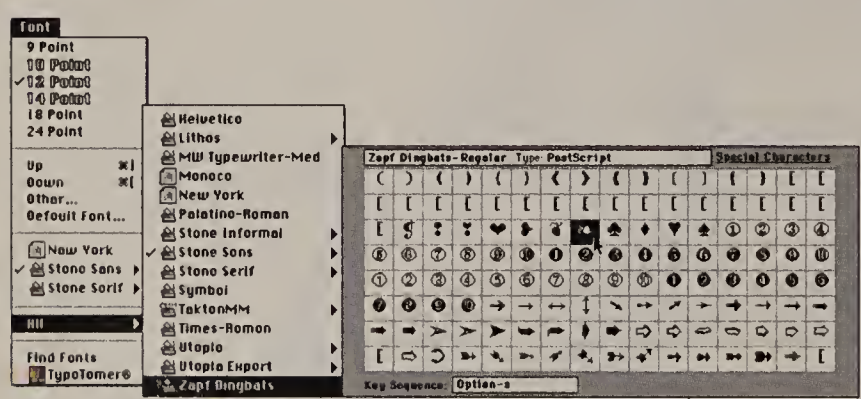
Choosing between these two programs depends to a great degree on your personal preferences; Impossible Software offers a demo version of TypeTamer on its Web site so that you can at least see how well this utility works for you. Personally, I prefer TypeTamer for its separate in-use font list and Font menu that scrolls in response to keyboard input.

Spell Catcher 1.5.7 Why should you use ten mediocre spelling checkers that operate ten different ways in ten different programs, when you can use Spell Catcher from Casady & Greene in all your applications?

Spell Catcher can check both interactively and on command, and operating it entirely from the keyboard is as easy as it gets. Its suggested spellings are almost always right on the money, and it can also correct capitalization, punctuation, double spaces, double words, and other errors. It's fast, and if you use Spell Catcher interactively, its glossary option works like TypeIt4Me, expanding user-defined abbreviations into full words. If there's a better spelling checker around, I haven't seen it.

BigThesaurus 2.1 However, there is a better thesaurus than Spell Catcher's, and it's BigThesaurus from Deneba. I find this program easier to operate from the keyboard, and its entries are more clearly organized and usually offer a larger choice of synonyms and antonyms.

Unlike Spell Catcher, which has but a single window, BigThesaurus allows me to view multiple entries at the same time, each in its own window, which I find helpful when I'm searching for the perfect word.



Entering Hard-to-Find Characters TypeTamer's modified Font menu can display a character-set chart, from which you can select and insert any character for any font.

EDITORS' CHOICE

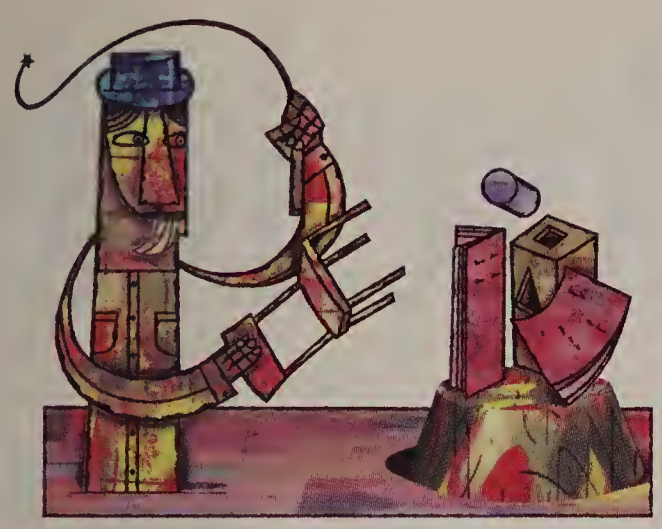
★★★★/7.2 **Adobe Type Manager Deluxe 4.0** New font-manager module proves you can teach an old dog new tricks—and beat the competition. **Company:** Adobe Systems (408/536-6000, *www.adobe.com*). **List price:** $99.95.

★★★/6.8 **Adobe Type Reunion Deluxe 2.0** Groups fonts in the Font menu into families and user-defined sets; lets you rename fonts or display them in their own typeface for easy identification. **Company:** Adobe Systems (408/536-6000, *www.adobe.com*). **List price:** $60.

★★★★/7.7 **BigThesaurus 2.1** The most complete, easiest-to-use electronic thesaurus available. **Company:** Deneba Software (305/596-5644, *www.deneba.com*). **List price:** $29.95.

★★★★/7.8 **Spell Catcher 1.5.7** Fast, well-designed spelling checker can be operated entirely from the keyboard. **Company:** Casady & Greene (408/484-9228, *www.casadyg.com*). **List price:** $59.95.

★★★★/7.3 **TypeTamer 1.1.8** Groups fonts in the Font menu into families and user-defined sets; lets you scroll Font menu from the keyboard, and more. **Company:** Impossible Software (714/470-4800, *www.impossible.com*). **List price:** $59.95.



BETTER ORGANIZATION

SCRAPBOOKS AND notepads can get as disorganized as the real thing, and control-panel and extensions folders can get pretty anarchic as well—that is, unless you enlist some help.

Conflict Catcher 4.0.2 Apple is as guilty as the rest of making chaos out of order in the System Folder. Although Apple's latest, better-designed Extensions Manager tries to solve the problem, Conflict Catcher 4 from Casady & Greene is by far the best way to understand, organize, and control start-up documents of all kinds.

With Conflict Catcher, turning control panels and extensions on and off and organizing them in sets is just the beginning. Conflict Catcher can also tell me the function and memory usage of all my start-up items, automatically test for conflicts, sort start-up items in ten useful ways (including by the program that installed them), manage plug-ins for programs such as Netscape Navigator and QuarkXPress, and even direct my Web browser to the update page for a specific item or to Casady & Greene's extensive reference database. Recipient of a rare five-star rating, Conflict Catcher deserves them all.

ScrapIt Pro 5.33 Sadly, Mac OS 8's Scrapbook still doesn't allow you to assign titles or keywords to clippings, view more than one clipping at a time, or search for clippings. One reasonable fix is the Now Scrapbook part of Now Utilities ($89.95; see *Reviews*, March 1997) from Now Software (503/274-2800, *www.nowsoft.com*). For my money, the best scrapbook going is shareware ScrapIt Pro by John V. Holder, which can open up to 20 scrapbooks and display each scrapbook's contents as a scrolling list (see the screen shot "A Better Scrapbook") or as a collection of thumbnails. (ScrapIt Pro is available at *www.macworld.com/more/*).

A Better Scrapbook You can display ScrapIt Pro contents as scrolling lists of titles or thumbnails (shown here); the selected item is shown full-size on the right.

The software automatically titles a text item with the item's first few words. It allows me to edit the text in a clipping and copy just part of a text or graphic clipping. I can attach a comment to any item and search for text occurring in the titles, comments, or bodies of all items. ScrapIt Pro fully supports drag and drop, and I particularly like the fact that I can add blank text items for on-the-fly notes.

Companion utility QuickScrap adds hot keys for copying and pasting directly into and out of the Scrapbook or its own multi-item clipboard, and—I found this especially handy—it allows me to name clippings when I copy them, for easy retrieval later.

DragStrip 2.0.1 Finding an application launcher with the perfect balance between maximum functionality and minimum screen clutter is not easy. Clear winners in the latter category are CE Software's QuicKeys (see the "Keyboard Shortcuts" section) and Now Utilities' Now Menus, which can install an applications and documents menu for each user of a shared computer.

But for those who like to see their choices all laid out in front of them, DragStrip from Natural Intelligence is it. Its button strips are compact, and it's a separate application (no extensions headaches here). Buttons can represent applications, documents, folders, groups of items, clippings (text, graphics, sounds, and so on), Control Strip modules, and special DragStrip modules (such as a calendar displaying phases of the moon).

It's easy to assign buttons a function via drag and drop, and many buttons can display pop-up lists of folders and documents. Since I'm trying to go mouseless, I especially like being able to select strips, navigate from button to button, and "click on" buttons using the keyboard.

EDITORS' CHOICE

★★★★★/9.3 **Conflict Catcher 4.0.2** This is a nearly perfect, and virtually essential, start-up document manager. **Company:** Casady & Greene (408/484-9228, *www.casadyg.com*). **List price:** $99.95.

★★★★/8.1 **DragStrip 2.0.1** Versatile, feature-packed file launcher is well worth the premium price. **Company:** Natural Intelligence (617/876-4876, *www.natural.com*). **List price:** $59.95.

★★★★/8.0 **ScrapIt Pro 5.33** Edit text, copy part of an image, and find items by title or contents in up to 20 open scrapbooks. **Author:** John V. Holder (*www.northcoast.com/~jvholder*). **List price:** $20 shareware fee.

Macworld's Buying Advice

You probably don't need every one of the utilities I've described here (none of the experts I polled use all of them). But no matter which ones you decide to work with—whether they're revving up your system performance, simplifying your online experience, cutting down your keystrokes, taming your text, or helping you get organized—these top-notch programs can make your life a lot easier by saving you time and trouble (see *www.macworld.com/more/* for a firsthand look at most of them). Best of all, a handpicked utility collection will enhance your Mac OS 8 upgrade, fixing the system software deficiencies that vex you the most while it boosts your productivity. Now there's an offer you can't refuse. m

Contributing editor ROBERT C. ECKHARDT thanks the *Macworld* editors who assisted with this article and who, like him, find utilities indispensable.

BY DAVID POGUE

Top Pocket

DISCOVER THE BEST PALM

Pick a Sidekick
We sort out the diverse charms of these data vessels.

PHOTOGRAPHS BY DAVID GAZ

Organizers

ZE DEVICE TO CARRY YOUR DESKTOP DATA

NEWT APPLEBY WAS A TRAVELIN' MAN WITH A PROBLEM. As he made rounds of his computer clients, he frequently needed to check his schedule, look up a number, take notes, confirm an account code. But a PowerBook wasn't the answer for Newt—a laptop was too big, heavy, and slow for instant lookups. Besides, a PowerBook was another $3000 expenditure for a Mac fan who already owned a perfectly good computer. No, what Newt really needed was a Mac *satellite:* a less expensive handheld gadget that would exchange data with the Mac before and after each excursion from the office.

Newt wasn't alone in his quest for a lightweight data valet, either. While he was buying Apple's (*www.newton.apple.com*) Newton MessagePad 2000, three other fellow travelers across the continent were investing in their own satellites: U.S. Robotics' (*www.usr.com*) PalmPilot Personal; Sharp Electronics' (*www.sharp-usa.com*) Zaurus ZR-5800FX; and Psion's (*www.psioninc.com*) Series 3c. Each device was a study in electronic downsizing, and despite their similarities, each was as unique as its new owner.

Appleby's Nifty Newton

Newt Appleby bought the MessagePad 2000 for $949. It was big, good-looking, and powerful—"just like me," he winked to the salesperson. It came with a generous assortment of bonus software, including a spreadsheet, a word processor, e-mail software, and a Web browser.

To Newt's surprise, the MessagePad 2000's handwriting recognition really worked, turning his scrawl into neatly typed text with only rare (and easily corrected) mistakes. For use in meetings, he bought the compact black $80 Newton keyboard. And when he was home, he tethered the MessagePad to his Mac's serial port and typed data into the MessagePad using his Mac's keyboard.

The MessagePad's size and graphic personality offered Newt luxuries not available to other palmtop users. For example, one tap on the Dates icon took him directly to the day's agenda screen, and on the MessagePad's big screen, Newt could write events directly into their time slots—an impossibility on other palmtops. The drag-and-drop feature made rescheduling events a snap, and he could view any combination of day schedules (just Friday through Sunday, for example) on a single screen by dragging his pen across the little month-view calendar. The Newton's other programs exhibited similar graphic elegance, smoothing many operations.

By adding a PC Card or desktop modem (for the list of approved models, see *www.newton.apple.com/nie/*), Newt discovered, he could send and receive Internet e-mail and faxes with no additional software, or even browse the Web—complete with gray-scale GIF graphics, either full-size or scaled to fit the screen (but without frames, multimedia, JPEGs, or background patterns).

The Pilot: Light

Meanwhile, petite Manhattan lawyer Amelia Lindbergh also wanted a compact Mac satellite. But to her, the roughly 5-by-8-inch, 1.4-pound Newton was a behemoth; it certainly wouldn't fit in her pocket. Instead, she bought a U.S. Robotics PalmPilot Personal. At $299, the Pilot was about a third the cost of a Newton; and at about 3 by 5 inches, it was a fraction of the Newton's size.

The Pilot also relied on handwriting recognition (with an on-screen keyboard for emergencies), but required that Amelia print each letter in a prescribed way (known as the Graffiti alphabet). Learning Graffiti took her about 15 minutes, thanks to a thoughtful shortcut: drawing a big line up the Pilot screen made a handy cheat sheet appear.

Four push buttons sat below the Pilot's screen: Calendar, Contacts, To-Do's, and Notes; a single press of any button turned on the unit and opened the corresponding program. The tiny machine offered many of the Newton's graphic niceties: when entering her upcoming trip schedule, Amelia could drag and drop events between time slots; schedule recurring events; and switch among day, week, and month views.

The Pilot's other software programs were similarly lean, fast, and filled with grace notes such as automatic capitalization and capacious Notes pages. With SmartCode's $40 HandStamp software (847/945-3516, *www*

.smartcodesoft.com) and U.S. Robotics' tiny $129 Pilot modem (or—with a special cable—any desktop modem), Amelia could even use Internet e-mail. It was clear to her that somebody had sweated over the Pilot's design with an obsessive eye toward simplicity, speed, and clarity.

Dinah's Zaurus: A Bit Crude

Meanwhile, Ontario real estate agent Dinah Sharpton was testing her new $599 Sharp Zaurus. Instead of the rectangular, glass-faced slab design of the Newton and Pilot, this gizmo looked like a sunglasses case: screen on the top half, tiny keyboard on the bottom. Equipped with the matching snap-on $100 fax modem, the Zaurus even had full access to CompuServe e-mail, forums, and software libraries. (For regular Internet e-mail Dinah could purchase Rupp Technology's $79.95 Z-Email software [602/941-4789, *www.rupp.com*].)

The Zaurus didn't understand any sort of handwriting—the plastic pen was exclusively for making little drawings and tapping buttons on the screen. For text entry, Dinah had to type on the microscopic keyboard, staring down to peck with two fingers while balancing the tiny unit on her lap. "Some palmtop," she muttered. "Try *kneetop*."

Fourteen painted-on buttons, such as Activities, Contacts, Spreadsheet, and Help, surrounded the Zaurus's screen. The artwork was crude, however, and the labels were in all capitals—a lack of design polish that Dinah soon discovered in all aspects of the Zaurus. (She was particularly amused that the backspace key was labeled *BS*.)

The One for the Road U.S. Robotics' PalmPilot Personal fits in the palm of your hand but sacrifices none of the graphic elegance found in larger PDAs.

When she turned on her unit—unlike the other palmtops, this one takes several seconds to warm up—and pressed the Activities button, the datebook screen was a three-ring circus of controls and displays. A month-at-a-glance calendar, a to-do list, a sliding timeline for the day, and a list of the day's events were packed onto a single screen. Still, Dinah found the timeline to be a brilliant touch: she could schedule a meeting simply by dragging her pen across the appropriate hours. The Zaurus's sluggishness bugged her—after every operation, a SAVED! dialog box commandeered the screen for several seconds—but overall, she was pleased with the software's depth.

The Clean and Crisp Psion

At that very moment, Texas oil scion Cy N. Simon III was opening his new Psion 3c, a $549 British gadget. Like the Zaurus, the Psion had a sunglasses-case design; unlike the Zaurus, the Psion's screen snapped open to a nonadjustable, sometimes inconvenient angle. Still, Cy thought he'd prefer the Psion because of the huge library of programs legions of ardent Psion fans have created. And in case he wanted to use e-mail, $199 for the PC Card send-fax modem seemed reasonable enough.

Nine touch buttons bordered the Psion's screen, such as Time, Calc, Sheet (for spreadsheet), and Data (for database). After arriving at his hotel, Cy punched Agenda to turn on the unit and open the datebook. The Psion's datebook screen, as with all its programs, was clean and uncluttered, maximizing space for schedule display (day, week, year, to-do, and list views were all available).

To add events to the calendar, Cy started by punching the keyboard's Menu but-

Economies of Scale: What the Satellites Offer

Company	Apple	Psion
Product	Newton MessagePad 2000	Psion Series 3c
Star Rating*	★★★/6.9	★★★/6.0
List price (unit/connection kit)	$949/included	$549/$99
Phone	408/996-1010	508/371-0310
Size (w × h × l)/weight with batteries	4.7 × 1.1 × 8.3 inches/22.4 ounces	6.5 × 3.4 × 0.8 inches/9.7 ounces
Screen size (in pixels)	480 × 320	480 × 160
Memory (RAM/ROM)	5MB/8MB	2MB/2MB
PC Card slots	2 Type II	external PC Card adapter available
Input/output ports (sound, data, other)	1 proprietary; 1 serial; 1 infrared	1 serial; 1 infrared
Microphone/speaker	●/●	●/●
Sound features	voice recording; sounds on taps, drags, menu drops	voice recording; soundwave editor; chirps on button-presses
Temporary backlight	●	●
Unique features	rotatable screen; removable lid; cursive recognition	zoom in/out; built-in programming language; thesaurus
Comments	It's everything you'd want in a handheld: powerful and fast. At $1000 and 8.3 inches long, it approaches half the price and size of a laptop, but its solid connection to the Mac improves its Star Rating over our July review.	This cult favorite from England shows impressive attention to detail in its well-designed software (including hundreds of free and shareware apps). The much-improved Series 5 model, due later this year, will come with the touch screen this machine so desperately needs.

Editors' Choice winner in red. ● = yes, ○ = no, NA = not available. *Based on features, implementation, innovation, ease of use, and value. (See Star Ratings section for full explanation.)

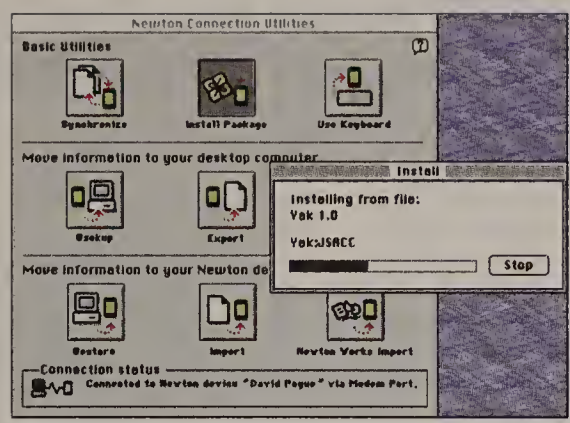
ton. The menu bar appeared, sporting a generous range of commands in large, crisp lettering; from there, the arrow keys moved from menu to menu, and keyboard shortcuts were also available. All Cy missed was a more direct means of specifying an event's starting time: the sole palmtop without a pen, the Psion forced Cy to use arrow keys to move among time slots.

Sync or Swim

In their respective hotel rooms, the four hardy travelers tapped alarm times into their machines. The next morning, all four palmtops woke themselves up, then began chirping to awaken their owners. It was time to fly home and dock their new purchases to their desktop Macs.

By the end of her two-day trip, Amelia had scribbled into her Pilot five memos, several clients' e-mail addresses, and dates for upcoming appointments. Only one task remained: to transfer all this data onto her Mac. Now she'd find out exactly how well her digital assistant served as a Mac satellite.

To her delight, Mac synchronization was the Pilot's best feature. The Mac Pack included a Mac-based version—called Pilot Desktop—of the Pilot's own built-in programs so that Amelia could use the Mac to keep her contact list and calendar current while not on the road. (The Mac Pack is $14.95 when purchased separately, but is often available as a free bonus from the dealer with the purchase of a Pilot.)



Simple-Minded Apple's Newton Connection Utilities are easy to use, but are not as flexible as U.S. Robotics' Pilot Desktop for the Macintosh.

To dump her Pilot's data to the Mac, she slipped the Pilot into the custom cradle attached to her modem port and pressed the cradle button. The synchronization software automatically launched itself on both the Mac and the Pilot, backed up the Pilot's data, and produced an "I'm done!" chirp. Sure enough, Pilot Desktop now contained any new entries she'd entered in the Pilot, and vice versa.

The following week, Amelia bought Now Software's (503/274-2800, *www.nowsoft.com*) Now Synchronize for $30. A single button press on the Pilot's cradle now performed the mutual Mac/Pilot updating with Now Contact and Now Up-to-Date (although not without some hitches; see *Reviews*, August 1997). Amelia discovered that she could also have bought the Pilot, connection kit, Now Contact and Up-to-Date, and Now Synchronize for a bundle price of $299.

Newton Connects

Newt Appleby had similar success with the Newton's connection software—he just connected a modem-port cable, launched the Mac software, and tapped an on-screen Newton button—but the software wasn't quite as functional as the Pilot's. The Connection Utilities program was primarily a backup program; he couldn't edit his Newton data on the Mac, as Amelia could with Pilot Desktop. Though if Newt kept his names and addresses in Claris Organizer or Now Contact and Up-to-Date, the Newton Utilities software worked like the Pilot, intelligently bringing the Newton and those Mac programs up to date with each other—a beautiful thing to behold.

Half-baked Psion

As Cy N. Simon III discovered, the $99 Psion Link software made backing up the Psion extremely simple; he connected one cable end to a Psion socket and the other end to his Mac's modem port. Then he launched the Psion Link program on the Mac, which displayed a tree-style directory window for each device (Mac and Psion). To back up the Psion, Cy dragged file and folder icons from the Psion tree window into the Mac's tree window.

Unfortunately, opening the backed-up data on the Mac was another story. Cy learned that he'd first have to open each file on the Psion, one by one, and save it into an intermediary format, such as RTF for word processor documents or WKS for spreadsheets—and then import these transitional files into his Mac software. As for the calendar, Cy was out of luck; the Psion couldn't export its Agenda into any Mac-readable format—and the Psion's calendar program couldn't import event data at all. (Psion says it plans to release an overhauled connection kit later this year.)

Not Enough Zaurus

Dinah Sharpton was discovering back at her office that the Zaurus's hookup situation is similar to the Psion's: she could open spreadsheet, word processor, and database documents on the Mac only after converting them to intermediate formats. But the Zaurus's $6.95 connection software made an enormous difference, performing these translations automatically (instead of mak-

Sharp Electronics	U.S. Robotics
Zaurus ZR-5800FX	PalmPilot Personal
★★★/5.0	★★★★/8.3
$599/$6.95	$299/$14.95
201/529-8200	847/676-1441
3.7 × 1.0 × 6.7 inches/14.6 ounces	3.2 × 0.7 × 4.7 inches/5.7 ounces
320 × 240	160 × 160
2MB/NA	512K/8K
1 Type II	none
1 proprietary; 1 infrared	none
○/●	○/●
chirps on button-presses and taps	chirps on button-presses and taps
●	●
built-in CompuServe software; mapmaking tools; adjustable hinge	condensed schedule view (hides empty hours); text macros; docking cradle
The Zaurus is a serious computing machine; as such, it's the least user-friendly. Of these four handhelds, this one will seem the most alien to Mac fans, thanks to the keyboard's weird layout, the cluttered interface design, and the nonexistent shareware offerings.	Other palmtops have more features, but also more complexity, cost, and bulk. They may be better for people in special jobs; but if you're after a pocketable Mac satellite, the Pilot is the one you'll actually end up using.

Put a Rocket in Your Pocket Organizer: Just Add Software

ALL OF THESE PALMTOPS COME WITH SOFTWARE, BUT THE shareware and commercial worlds harbor hundreds of add-on programs that can make these palmtops even more useful. (You can find the shareware and free programs that follow at *www.macworld.com/more/*.)

Newton
Since the Newton is a nearly full-fledged computer in its own right, scads of software is available for it, including PocketMoney (Quicken-compatible finance program, $30 shareware), Aloha (America Online e-mail, $50 shareware), and dozens of special-market programs (for doctors, for example; a complete list of these is at *www.jointsolutions.com/newton_3/html/vertical.html*). There's even Speller, a tiny $20 spelling checker that flags errors (but doesn't propose replacements).

Pilot
Though the Pilot is the new kid on the block, the online software libraries offer hundreds of tiny goodies. Pocket Chess is impressive freeware that lets you play against another person or the Pilot; CurrEx is a free currency converter; PocketSynth is a $10 melody synthesizer; and DinkyPad is a pocket-size painting program ($5).

Zaurus
Because Zaurus software must be programmed on a specialty development system, there aren't as many shareware programs as for other palmtops (in fact, we couldn't find *any*). Most of the commercial products come from Rupp, which offers the Z-Games pack (poker, Othello, and Code Breaker for $49.99); Z-Calc (a scientific calculator for $49.99); and Z-Finance (Quicken-downloadable data, $49.99). And Sharp itself sells ZR-5P01 Expense Manager, with pop-up menus for quick input of travel expenses.

Psion
The Psion's software library is huge. Psion itself sells programs such as Expense Tracker ($49.99), Money (exportable to Quicken, $120), Berlitz Interpreter (French, German, Spanish, or Italian, $120), and Chess ($100). Even more potent programs are available, some from British companies—you can order these through New World Technologies (212/941-4633, *www.nwt.com*). Examples include Plain Paper Invoicing from Lasersoft, Mediman (medical record tracking from Publistix, 908/536-3954), and Compute-a-Diet from Comcard.

ing Dinah do a Save As for every document on her palmtop). Dinah found that even calendar data could be swapped—after being exported as a text file.

Macworld's Buying Advice

Several months later, an astounding coincidence took place on Flight 1220 to New York. Newt Appleby looked up to see, by a fluke of fate, three other palmtop users in his same airplane row. After a quick round of introductions, Newt, Dinah, Amelia, and Cy were delightedly exchanging notes on their palmtop experiences.

"I love my Newton," boomed Newt to the others. He explained how his gadget's graphic elegance, clever interface design, and high-speed 166MHz processor made it a worthy computer unto itself. "Only thing I'd change is the battery life," he finally admitted. "I run through four AA's in a couple of weeks."

"Oh, but that thing is so big and heavy and expensive!" exclaimed Dinah, brandishing her Zaurus. "Now, if you want a real computer in your pocket, check out this baby." She showed them the sophisticated built-in Zaurus programs; even on the Zaurus's 320-by-240-pixel screen, the spreadsheet offered font, size, and style commands; borders; pie, line, column, and stacked-bar charts; and so on. "And look," she concluded, "the word processor has a spelling checker, tabs, indents, and even drag-and-drop editing!"

Cy was taken aback by the Zaurus's crammed screens and clashing fonts. "And what's the deal with the Zaurus's keyboard?" he objected further, pulling out his Psion. "You got tab on the right side, slash on the left, and cursor keys at the top!"

Dinah looked wounded.

"Now, my Psion," Cy continued, "doesn't have one o' them plastic pens. But look here." He held up the Psion so the others could see how open and clean its screens were. "Overall, I guess my Psion's features aren't as rich as the Zaurus's. But I'll betcha I'm more productive anyway, just on account of my Psion is so much easier to figure out." He looked across the aisle at Amelia Lindbergh. "Whatcha got there, little lady?"

Amelia looked up. "This is the Pilot," she said. She took a moment to explain how the Pilot was designed from the start to be a personal-computer satellite, complete with one-button, two-way synchronization. As she demonstrated, the other three were amazed at her using-to-floundering ratio: Amelia never spent time figuring out how to do something on her tightly focused Pilot—she simply *did* it.

Dinah was impressed. "Yeah, but how much juice does that thing use?"

Amelia smiled. "Two AAA batteries; I haven't changed 'em in four months." As the plane touched down, Amelia relaxed back into her seat, confident that she had the fastest, smallest, niftiest satellite in the galaxy. **m**

Contributing editor DAVID POGUE (*www.pogueman.com*) is a gadget freak, composer, and coauthor of *Macworld Mac Secrets* (IDG Books Worldwide, 1997).

EDITORS' CHOICE

★★★★/8.3 **PalmPilot Personal** One-touch syncing with your Mac's data is the highlight of this tiny, fast, inexpensive, battery-stingy, 6-ounce marvel. **Company:** U.S. Robotics (847/ 676-1441, *www.usr.com/palm/*). **List price:** $299, plus $14.95 for Mac Pack connection kit.

REAL PRODUCTS REAL RATINGS

Reviews you can trust Unlike other publications, *Macworld* rates only final shipping products, not prototypes. What we review is what you can actually buy.

This EPS image was printed on an inkjet **without** StyleScript

This EPS image was printed on an inkjet **with** StyleScript

StyleScript makes a difference you can really see

StyleScript turns your inkjet into a genuine Adobe PostScript printer

This EPS image was printed on a color inkjet printer **without** StyleScript

This EPS image was printed on a color inkjet printer **with** StyleScript

If you've been using your inkjet to print EPS graphics, you've probably seen something called the "jaggies". Although your inkjet is of very good quality and very affordably priced, it's not a PostScript printer. This means it will print photos beautifully but is unable to print EPS clip-art or logos. The results will be jagged and certainly not what you were expecting. You need PostScript capability but PostScript printers are very expensive. That's where the StyleScript solution comes in.

StyleScript is a software package that will upgrade your inkjet into a PostScript printer, at a fraction of the cost. With StyleScript installed, you can print any image on your inkjet with great results. That's because StyleScript is genuine Adobe Level 2 PostScript software.

Your documents will print sharp everytime — there'll be no surprises and no "jaggies". The samples above and on the left show what a big difference StyleScript will make on your output. And the best part of it all — StyleScript costs less than $100.

The Benefits of StyleScript

- EPS clip-art and logos will be crisp and clean
- PostScript fonts will be sharp at any size or angle
- screens/dither patterns will be better looking
- color will be more accurate

Supported Printers

Inkjet printers from Apple, Canon, Epson, and HP.

BIG NEWS! The latest version of StyleScript supports:

- the new Apple StyleWriters 4100, 4500 & 6500
- the new Canon 4550, featuring full-bleed tabloid-size printing

Call us now: 800.807.9905
Web: www.infowave.net

INFOWAVE

Adobe PostScript

StyleScript®

4664 Lougheed Highway, Suite 188, Burnaby, BC, Canada V5C 6B7 PHONE: 604.473.3600 FAX: 604.473.3699 e-mail: info@infowave.net

© 1997 Infowave Wireless Messaging Inc. Infowave, Infowave logo, StyleScript, & StyleScript logo are trademarks of Infowave Wireless Messaging Inc. which may be registered in certain jurisdictions. All other trademarks are property of their respective owners.

Circle 32 on reader service card

Macworld EXPO

Sneak Preview!

A First look at Macworld Expo Boston

4-SIGHT — World Trade 5802

4-Sight FAX is the leading cross platform network fax product. Using a robust client / server architecture, it allows both Macintosh and Windows users on the same network to send via one Modem. This turns sending a fax from a time wasting manual operation to a simple click of a button. 4-Sight FAX supports Apple Script, allowing faxing from within a FileMaker layout or other scriptable applications. It also offers integration with leading e-mail packages, e.g. Quickmail, to add faxing capabilities to existing front end applications.

tel: 515-281-3000
web: 4sight.com
e-mail: info@4sight.com

CANOTEC — Apple Pavilion

BOPOMOFO* is a Chinese Input Method (Traditional/Simplified) that enables you to convert an entire sentence simultaneously as opposed to the lengthy single-character conversion method used up until now.

—Visit our booth and get a FREE SAMPLE ! **
—Take advantage of our SPECIAL PRICE during the show !

Call (408) 562-6255 for details.

*BOPOMOFO must be used in conjunction with Apple Computer Inc.'s Chinese Language Kit.

**Offer limited to availability.

KEYSPAN — Bayside 343

Better Than a Switch or Juggler!
* Allows simultaneous use of ports
* More stable than port sharing
* Data rates up to 230 Kbps
* PCI card in 2 or 4 port versions
* Works with all Comm Toolbox savvy serial devices

Your Satisfaction is Guaranteed!
* 30 day money back guarantee
* 5 year warranty
* SX-2 just $229 SX-4 only $329

CALL (800) 986-9146 TO ORDER!
* From FedEx Distribution Center
* Open 7AM - 9PM Mon-Fri (CST)
* Authorization Number: i-35
* Source Code: 25-h

LEISTER PRODUCTIONS — Bayside 449

Reunion 5—better than ever!
Leister Productions introduces a major upgrade at MacWorld. Tracking your family tree has never been easier. Create HTML reports ready for the web. Print beautiful wall charts (Timeline, Relative, Ancestor and Descendant) with photos and captions. Even drag relatives to the trash

- Sound and video support
- Unlimited individuals
- Unlimited facts and events
- Unlimited chart size

Unable to attend MacWorld Expo? Call MacConnection at 800-334-4444

Visit our website: www.LeisterPro.com

LUMINOUS — World Trade 5167

Ever had to convert hundreds of QuarkXPress pages to PDF files? Or convert thousands of Photoshop files into JPEG or GIF format for Internet publishing? With OPEN, you can automate complex, error-prone production tasks like these, giving you time for more creative activities, while increasing the efficiency of your workflow. Through a graphical interface, you create Pipelines for the tasks you need to accomplish. OPEN works with industry standard applications like QuarkXPress, FreeHand, PhotoShop, Illustrator and Acrobat.

800-685-OPEN, www.luminous.com

MAINSTAY — Bayside123

Use Mainstay's new PageCharmer Designer Applets for sizzling hot Java web page effects! With over a billion display combinations, PageCharmer brings your web pages to life with interactivity, animation, and enhanced navigation capabilities. No programming or HTML coding required! Includes

- Smart Image Maps
- Live Buttons
- Animated Marquees
- Scrolling Tickers

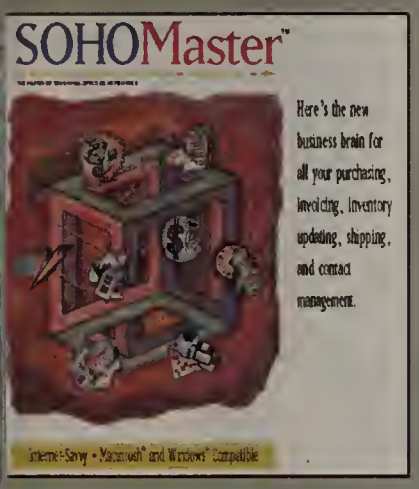
Buy a copy at Macworld Expo, or call Mainstay at (800) 484-9817 x3282. Get PageCharmer for a special limited time price of $99.95. www.mstay.com

Sneak Preview!

A First look at Macworld Expo Boston

Macworld EXPO

NEW PERSPECTIVE — World Trade 5023



SOHOMaster™—master of your Small Office/Home Office, efficiently handles your business management needs. This integrated database eliminates the need for function specific software and navigates through contact-management, purchasing, invoicing, inventory control, and shipping. With 119 features, SOHOMaster does it all.

- Mac/Windows networkable
- 30 day no-hassle trial
- $199.95 Expo Special!

New Perspective Software, Inc.
Toll free Sales: 888-522-8334
Faxback: 520-214-8334
www.newperspective.com

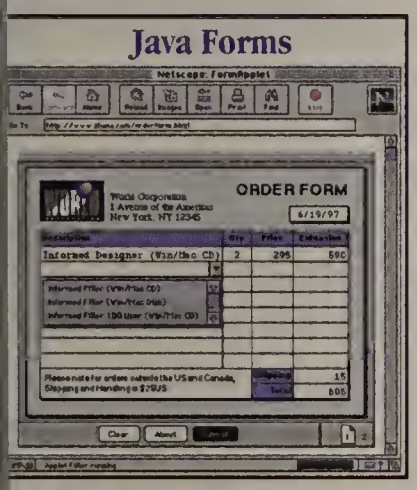
POWER ON SOFTWARE — Bayside 451

Power On Software publishes computer management software for business and education. Three packages work independently or together to make network management a snap:

- On Guard—top rated desktop security software
- Screen To Screen—screen sharing and remote control software
- LAN Commander—software distribution and centralized control

See us at Macworld Expo at Booth 451. Call 800-344-9160 or visit www.poweronsw.com to download FREE trials of all our software products and register to win in our monthly drawing!

SHANA — World Trade 5645



Now you can have fantastic looking forms on your web site with robust, powerful built-in calculations, error checking, help messages, scrolling tables and more. With Informed®, forms are easy to design, simple to maintain and can be filled out from any Java enabled browser. And you can put your form along with Informed for Java on a public web server for free! To see Informed for Java in action, stop by the Shana booth #5645 or visit our web site at <http://www.shana.com>.

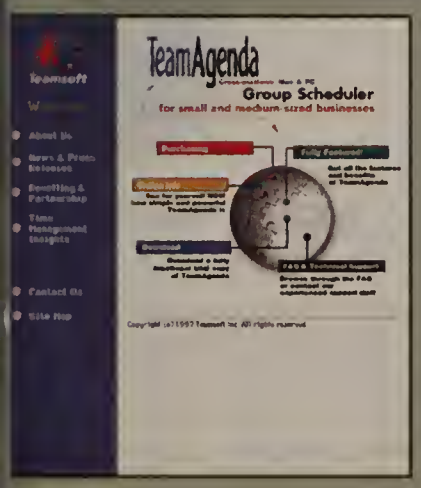
SMART STUFF — World Trade 5061

FoolProof Security provides cross platform desktop control and management utilities for Macintosh, Windows95, and Windows 3x. FoolProof Security is licensed on over one million business and school computers around the world.

- Protect systems and hard drives
- Multiple security groups
- Control Internet access
- Lock applications
- Remote control and software distribution
- Remote set up and administration

Stop by booth 5061 at MacWorld Expo, visit our web site at www.smartstuff.com or call 1-800 671-3999 for free demonstration copies of our software.

TEAMSOFT — Bayside 436



NEW... NEW... NEW... NEW

Teamsoft Inc. is pleased to announce its powerful new TeamAgenda version 3 (multi-platform group scheduler and resource manager), featuring:

- Internet access & direct e-mailing
- Contact management
- Integration with FirstClass software
- Workload & task management
- Real time updating
- Data export for time billing
- ... and more!

TeamAgenda version 3
at Macworld Expo/Boston
www.teamsoft.com

Circle 204 on reader service card

VIKING — Bayside 1424

When you need SPEED!

Nothing will enhance the speed, power and performance of your Powerbook better than a Viking 56K PC Card modem. It uses Rockwell's new 56Kflex technology for faster faxing, easier email, and dependable double-time downloading. Viking 56K modems are 100% tested, guaranteed compatible, and are backed by a 5-year warranty and 24/HR. tech support. Call 1-888-4-VIKING or visit www.vikingcomponents.com for the dealer nearest you.

Register to win a Viking 56K modem at Macworld Expo/Boston!

INTRODUCING THE WORLD'S FIRST 19" MONITOR.

18" VIEWABLE IMAGE SIZE

A breakthrough from Hitachi.

It's not just a new monitor size. It's new display technology that's got everything you ever wanted in a big screen monitor — better performance, smaller footprint, even the perfect price.

	HITACHI Mc 7515	SONY 20SEII
TUBE SIZE	19"	20"
PITCH	0.22 (H) 0.14(V)	0.25
MAX. REFRESH @ 1600 x 1200	75 Hz	75 Hz
SUGGESTED RETAIL	$1,149	$2,000

THE SONY IS AN INCH BIGGER BUT COSTS 74% MORE.

Get similar savings over other high-end 20 and 21 inch monitors as well.

The performance of the best 21" monitor.

The image quality of the new 19" RasterOps Mc 7515 is every bit as good as the best 21" monitor — and in some ways better. For example, its focus is a full 30% sharper than the previous state-of-the-art. Plus it delivers brighter, richer color and improved contrast at the same time.

It's also one of the few monitors of any size that gives you *genuine* 1600 x 1200 resolution — not a simulation. And one of fewer still that does it flicker-free to the VESA recommended 75 Hz refresh rate.

The new tube with multi-step dynamic focus and auto-astigmatism correction is also flatter than many CRTs so it displays a more accurate image with less distortion, even at screen edges and in the corners.

MONITOR	TUBE SIZE (Viewable size)	PITCH (mm)	1600 HORIZONTAL PIXELS?
NEC P750	17" (15.6")	0.25 mask	NO
SONY 17SEII	17" (16.0")	0.25 AG	NO
HITACHI Mc 7515	19"(18.0")	0.22 horiz.	YES (1672)
SONY 20SFII	20"(19.1")	0.30 AG	NO
VIEWSONIC GT800	20"(19.1")	0.30 AG	NO
MITSUBISHI 91TXM	21"(19.7")	0.28 AG	NO

Beware of monitors that claim 1600 x 1200 but lack a tube that can resolve 1600 horizontal pixels. Compare screens at 1600 x 1200 before you buy.

The footprint of a 17" monitor.

Look at the footprint and you're in for another surprise. The same technology that made our tube better also made it shallower — just 18.1". So it fits on narrower work surfaces.

And it's priced at just $1,149 (SRP*)

There's one more bonus to our new 19" tube technology. It's a lot less expensive to make so it goes for hundreds less than a comparable 20" or 21" monitor.

So if you want the resolution of a big screen monitor without the bulk and price of a conventional 20 or 21, you've got to see the new Mc 7515. Call for details and dealers near you. **800 441-4832.**

RASTEROPS

HITACHI

NSA 200 Lowder Brook Drive, Westwood, MA 02090 TEL: 800 441-4832. Faxback: 800 555-8552. www.nsa-hitachi.com
*SRP -- Suggested Retail Price

CDW	Club Mac	DTP Direct	Express Direct	Mac Connection	Mac Mall	Mac Market	Mac Warehouse	Mac Zone	PrePress Direct
800 800-4239	800 258-2622	800 311-7079	800 925-6777	800 800-2222	800 222-2808	800 223-4622	800 255-6227	800 248-0800	800 443-6600

Circle 74 on reader service card

Macworld

Subscriber Courtesy Voucher

As a new subscriber, you are entitled to receive a full year of Macworld for 60% less than the annual cover price of $59.88. BONUS GIFT: Our exclusive Clip Art CD containing an extensive collection of clip art images, digital stock photos and fonts! Send for your Clip Art CD now!

Please Check:

☐ 12 issues/$24.00.
Bill me later.

Name

Company

Address

City, State, Zip

E-Mail

Check us out at http://www.macworld.com

Savings Statement

Annual Cover Price
$59.88

Regular Subscription Price
$30.00

Your Special Rate
$24.00

Bonus Gift
Clip Art CD

Allow 4 to 6 weeks for delivery. For Mexican and Canadian subscriptions, please add $18 per year for shipping. Add $70 annually for all foreign countries.

4FQT9

Rush my
FREE Clip Art CD!

NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 1167 BOULDER CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld
SUBSCRIPTION DEPARTMENT
P O BOX 51666
BOULDER CO 80323-1666

Secrets

Whistle While You Work

MAKE THE MOST OF THE CD PLAYER LIVING INSIDE YOUR MAC

by Joseph Schorr

The number one productivity application on my Mac isn't Microsoft Excel, Corel WordPerfect, or Claris FileMaker Pro; it's the AppleCD Audio Player—the free program that lets you play audio CDs on your Mac while you work. When I'm struggling to meet deadlines, writing into the early hours of the morning, it's the insistent blare of my favorite CDs that keeps me from collapsing into a slumbering heap on the keyboard.

At first glance, Apple's Audio Player may not seem terribly sophisticated, but this tiny CD player has a few features that put a Sony Discman to shame.

Technically, you don't *need* the AppleCD Audio Player to listen to a CD. With QuickTime 2.5 or later, you can click on the Auto-Play When Inserted option in the QuickTime control panel and your audio CD will start playing, one track after another, as soon as you pop it into your CD-ROM drive. But if you want to tap into the Mac's more prodigious audio-CD capabilities—and control playback from your keyboard—the Audio Player has what you need.

Name That Tune

When you insert an audio CD into your Mac, it appears by default in the AppleCD Audio Player window with the generic name Audio CD. The tracks appear in the Tracks list generically as Track 1, Track 2, and so on. But with minimal effort you can name your CDs and the individual tracks, so you can pick among them by name instead of number.

To name a disc, launch the Audio Player program, press tab to highlight the disc name, then type in the name of your choice. (You can also click once on the disc name to select it.) Pressing tab repeatedly steps you through all the track fields, so you can type in a name for each one (up to 62 characters per name).

Naming discs and tracks may seem like a lot of unnecessary work—after all, you can always just look at the CD case to figure out what's on each track—but the big payoff comes later: once you've assigned all these names, your Mac remembers them—*permanently*. Every time you insert a named CD in the future, all the track names will be at your fingertips instantly. You'll be able to jump from song to song, without so much as a glance at the CD case.

How does the Mac manage to remember all those names? It identifies each audio CD with a unique ID number,

continues

Playtime

IF YOU THINK BEING ABLE TO PLAY YOUR favorite CDs on your Mac while you simultaneously crunch numbers in Excel or fuss over a QuarkXPress layout is convenient, wait until you master the AppleCD Audio Player's numerous keyboard controls, which let you start, stop, pause and switch tracks, adjust the sound level, and eject discs, all without lifting your fingers from the keyboard.

The keyboard shortcuts shown here work only with the Audio Player program running in the foreground. To make them easily accessible, leave the Audio Player program running: collapse the window and drag it into an accessible spot on the desktop—just below the menu bar, for example—so that you can activate these controls when you need them. To pause a disc when you get a phone call, for example, click once on the collapsed window (no need to open it) and press the spacebar. To resume playing, press the spacebar again.

Click on the clock to switch between remaining and elapsed time for either the disc or the current track.

Press delete to stop a CD from playing.

Press the spacebar or enter to start playing a track. The same keys pause a track that is currently playing.

Press ⌘-E to eject an audio CD.

Use the up- and down-arrow keys to adjust the volume.

Use the left- and right-arrow keys to jump to the next or previous track.

Press the tab key to select the disc name and enter renaming mode.

Press tab again to move to each successive track to type in names.

Press ⌘-Z to exit renaming mode, deselecting the track and disc fields and reactivating the arrow-key controls.

which is stored in a file called CD Remote Programs (it's in the Preferences folder in the System Folder). As long as that file remains intact, your Mac has a complete record of each and every CD it has come into contact with.

Programming—Once and Forever

Because the Audio Player is actually part of a fairly powerful computer, it's a lot smarter than your typical CD player. For example, one of the biggest frustrations with traditional CD players is their limited programmability. Sure, you can set up a customized program on your CD player to play back tracks in the order you want, but once you eject the disc or turn off the player, your programming efforts are obliterated. Wouldn't it be great if you could program a sequence of tracks for a disc and then have your CD player remember that sequence every time you play the disc?

The AppleCD Audio Player does just that. To set up a program, click on the Prog button. The lower portion of the player splits into two sections, with all the available tracks listed on the left side. Drag the tracks you want into the slots on the right side (called the Playlist) to set up the program (see "Be Your Own DJ"). You can drag the same track into more than one slot or leave tracks out entirely. Once you've dragged the desired tracks over, you can drag and drop within the Playlist to reorder the tracks however you please. To remove tracks from the Playlist, simply drag them anywhere outside. You can create a program containing up to 99 tracks. Then click on the play button and listen to the tracks in the order you've selected.

Here's the best part: like disc and track names, your custom playlists are also stored—permanently—in the CD Remote Programs file. As long as you preserve this file, your custom playlist is forevermore available when you insert that disc. (Remember this when you upgrade your system and perform backups. If you've done a lot of CD programming and track naming, you'll want to back up and preserve that precious CD Remote Programs file.)

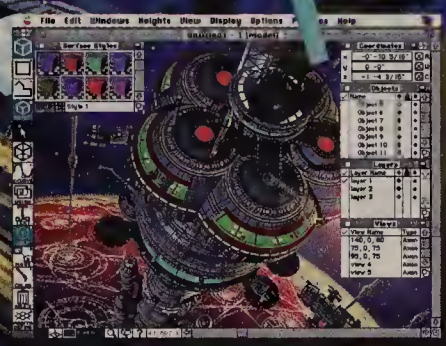
Be Your Own DJ Programming Apple's built-in CD utility is easier than programming most CD players. Just drag and drop the tracks into the playlist in the order you want. The Mac will remember your choices forever.

Beyond Sosumi

Getting tired of the Wild Eep, Sosumi, and other stock alert sounds? You can create your own by recording snippets directly from your audio CDs. In the Monitors & Sound control panel, change the Sound Input setting to Internal CD, then load the CD you want to record from and start playing it. Now open the SimpleSound utility (which you use to add and delete alert sounds), set the Sound menu to CD Quality, click on the Add button, and then click on the Record button at the beginning and end of the portion of the CD you want to capture. Give the captured sound a name, save it, and you have a brand new CD-quality alert sound on your system. (Just remember that these custom alert sounds are for your personal, noncommercial use only.) **m**

JOSEPH SCHORR is coauthor of *Macworld Mac Secrets*, fourth edition (IDG Books Worldwide, 1997).

3D solid and surface modeling at its best ...



David Mattingly,

of Hoboken, New Jersey, is a well known artist specializing in science fiction illustrations. About four years ago he discovered the new electronic media and has since been one of their most imaginative users. How does he do it?

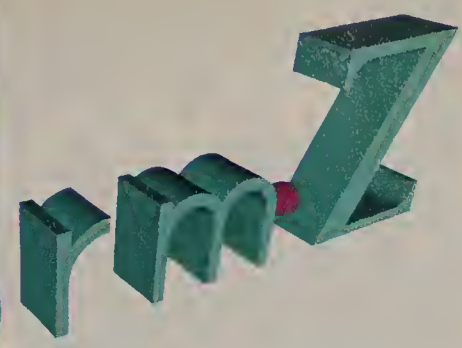
As an illustrator specializing in science fiction and fantasy subjects, I am called upon to create some very unlikely and unpredictable forms in my 3D work. Because of the incredible depth of the program, form•Z always has an answer to my modeling needs, and usually two or three alternative approaches. My models usually have lots of detail, generating polygon counts that would choke other programs, but form•Z allows me to easily work in the high detail I need to fully realize my ideas.

Having recently worked on a 3D game project and testing many other major 3D programs, I found form•Z superior to much more expensive modelers.

images ©David B. Mattingly 1997

See for yourself: download a demo for MacOS or Windows from our web site at

www.formz.com.



As a designer, you need to visualize complex forms and to imagine shapes that do not yet exist. You frequently race against insane deadlines, while your clients grow impatient. That's when you need the modeling power of **form•Z**.

form•Z lets you create a vast variety of forms with unprecedented ease. It offers an extensive array of unique 2D and 3D form sculpting capabilities.

Grow a model from simple lines to complex **surfaces** or to true **solids** with a few quick clicks. Shape curved **splines** or **NURBS** surfaces as you slip effortlessly between 2D and 3D views. **Resize** your shape, **stretch** it, **extrude** it, **lathe** it, **sweep** it, **project** it, **unfold** it, **deform** it, apply advanced vertex and edge **rounding** to it. Use **metaformz**, smooth **meshing**, image based **displacements**, or multi-source multi-path **skinning** to create smoothly blended **organic** forms. What's more, **form•Z**'s **Boolean** operations work even better than those found on pricey workstation level modeling packages.

Add as many **layers** as you need, work with floating point **precision** using simultaneous **graphic** and **numeric input**. If you're unhappy with your new design, **unlimited undos** are always at your fingertips.

RenderZone

When you're done modeling, you can use **RenderZone**'s state of the art shader technology to produce your photo realistic images at impressive speeds. Or you can transfer your models smoothly into your favorite animation program, using **form•Z**'s extensive import/export formats. Flexibility of this caliber has made **form•Z** the most effective modeling complement to many popular animation programs.

Now you can also produce **QuickTime VR movies** and view them from within **form•Z**.

Mac OS

MICROSOFT WINDOWS COMPATIBLE

autodessys INC

Phone: (614) 488-8838
Fax: (614) 488-0848

Circle 49 on reader service card

"You got *that* from a desktop scanner?"

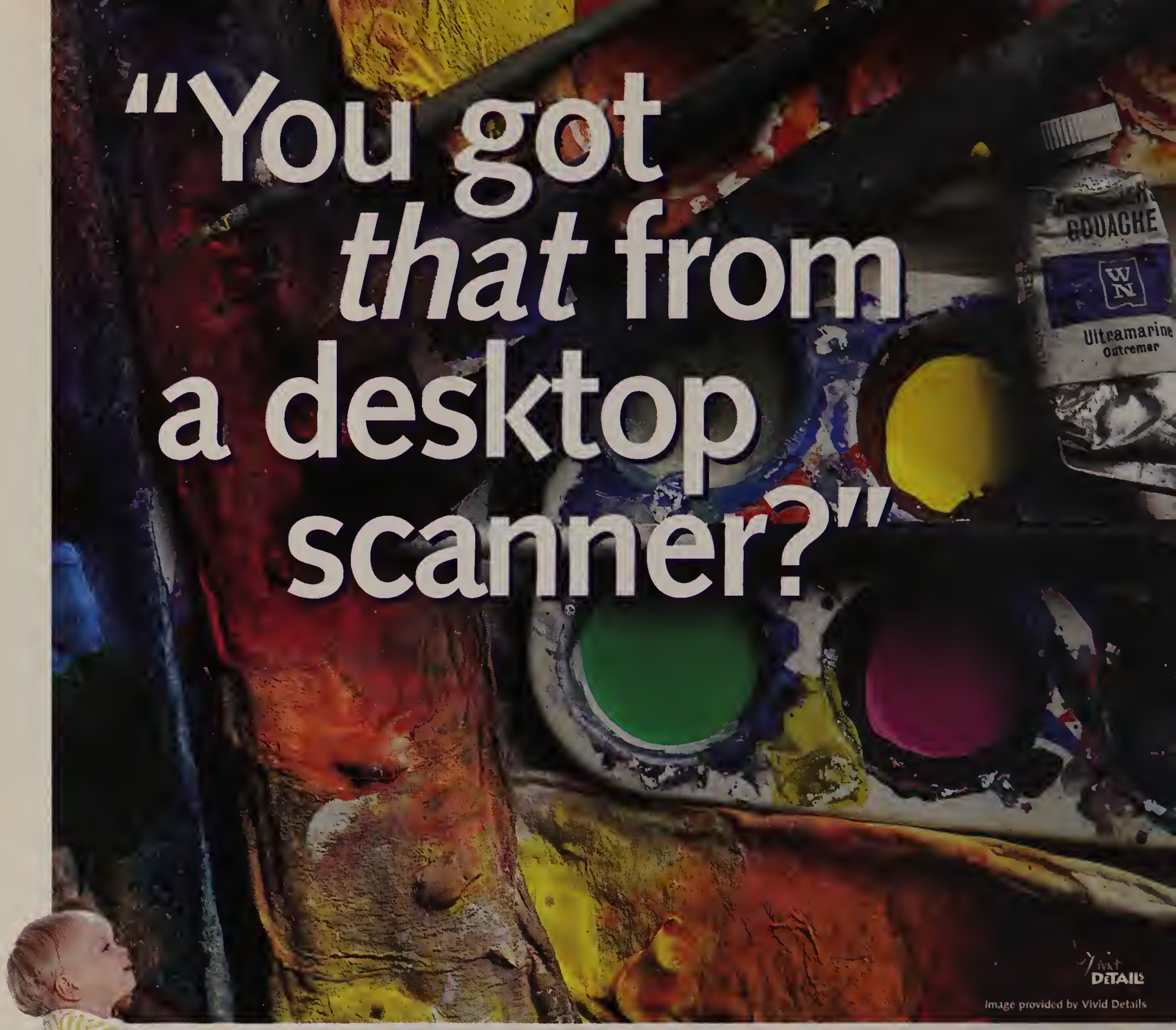
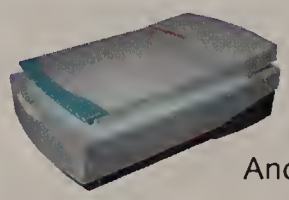


Image provided by Vivid Details

This image was scanned on a LinoColor SAPHIR Ultra with VisuaLab software from a 2 1/4" transparency, 1000 x 2000 dpi, 3.3 density range.

SAPHIR Ultra may look like an ordinary desktop scanner, but when you see its output, you won't believe your eyes!

True professional tool: With high resolution, one-pass scanning and automated color adjustments, the quality and productivity of the SAPHIR Ultra, available for under $5,000, rivals much more expensive scanners.



True professional quality: Resolution is 1000 x 2000 dpi at a 36-bit depth. Both prescan and fine scan are extremely fast and the 3.3 density range generates detailed shadows and superb highlights. Scaling ranges from 1% to 800% – in 1% steps. And if you work with large originals, our OPAL Ultra can handle two-page spreads.

True professional color: LinoColor™ VisuaLab™ software (available for Macintosh® or Windows® 95 or NT) puts 40 years of professional color expertise at your fingertips. Its intuitive user interface makes fast, professional-level color correction simple. And ColorAssistant automatically removes color casts, defines densities and corrects contrast.

Seeing is believing: See what Ultra scanners can do. Call today for a sample or demonstration: **888-LINOCOLOR.** In Canada: 800-668-0770. Or visit: **www.linocolor.com**

Linotype-Hell

LinoColor
Color is child's play.

©1997 Linotype-Hell. Hell and Linotype are registered trademarks; and LinoColor and VisuaLab are trademarks of Linotype-Hell AG and/or its subsidiaries. Macintosh is a registered trademark of Apple Computer, Inc. Windows is a registered trademark of Microsoft Corporation.

Circle 17 on reader service card

Quick Tips

Tips, Tricks, and Shortcuts

by Lon Poole

To instantly select all messages from the same person in Eudora 3.0's In Box, Kelly McDaniel of Austin, Texas, suggests you press the option key and select any message from that person. You can also option-click the date or the subject to select all messages with the same date or the same subject (including subjects beginning with *RE* that are otherwise the same). You can now easily transfer the selected messages to a mailbox or scroll through the In Box to find one particular message. Eudora 3.1 minimizes the amount of scrolling you have to do by moving all the selected messages together. The selected items remain selected if you use the Sort submenu in the Special menu to put the messages in a different order. The option-click trick also works in the Out Box and in mailboxes you create.

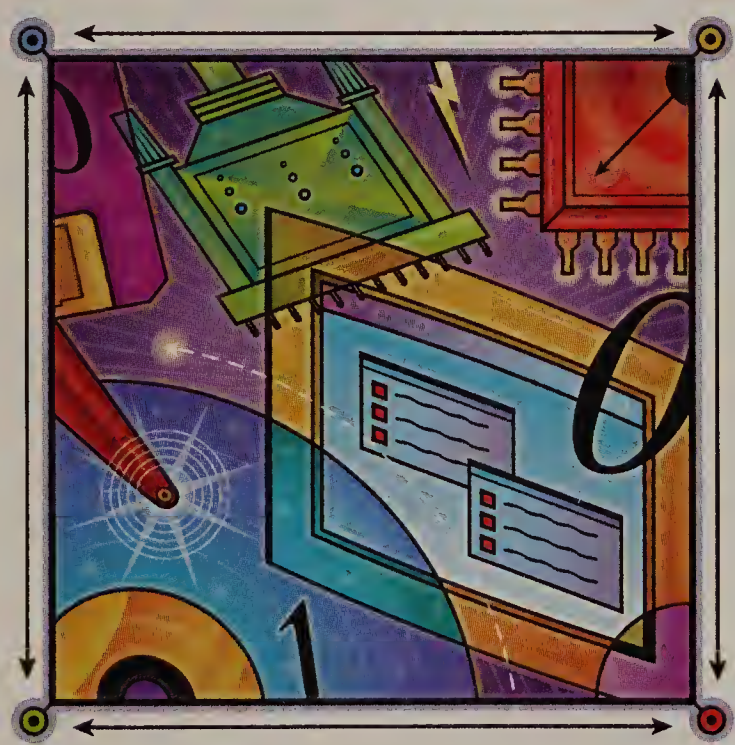
Fractions

Q. I have been putting together some charts in Microsoft Word that require using fractions. At work on my PC, this is no problem, since the three important ones—¼, ½, and ¾—are in the Symbol command's window. But at home on my Mac they don't exist. Is there any way to make fractions, or do they lurk somewhere within one of the fonts already in Word?

Gregory Kuntz
Los Angeles, California

A. You can type your own fractions with ordinary fonts as follows: First type the whole number and the fraction without any spaces between. For the fraction bar, try typing option-shift-1 rather than a slash (this doesn't work in some fonts, such as Geneva and New York). Next select the numerator and make it superscript style. Then select the denominator and make it slightly more than half the size of the whole number. For example, if the whole number is 12 points, make the denominator 8.

If your fractions look too homemade or if that's too much hassle, you can buy fraction fonts. The Helvetica-like Sans-Fractions and the Times-like SeriFractions have diagonal and vertical fractions for ½ through ⁸⁄₉, plus 16ths and 32nds.



They're shareware fonts by Tom Schmidt, available in a Mac version (TrueType and Type 1) and a Windows version (TrueType only) for $9.95 each.

Some commercial font vendors also offer fraction fonts. Linotype Fraction Pi from Linotype-Hell (516/434-2000, *www.linotype-hell.com*) has prefabricated serif and sans serif fractions and lets you build your own. You can also get Helvetica and New Century Schoolbook fraction fonts in Mac and PC PostScript versions for $22.50 each or $80 a set from Monotype (847/718-0400, *www.monotype.com*). And some Adobe Expert Collection font sets include fractions that match the typeface of the Expert set; contact Adobe (408/536-6000, *www.adobe.com*).

Personal Home Page

Q. I would like to design my own home page, but how do I get Netscape Navigator to open without looking for the modem and dialing out? I have tried all I can think of.

Jay McAlevy
Redding, California

A. From Navigator 3.X's Options menu, choose General Preferences. If you want Navigator to start up with an empty browser window, under the Appearance file tab set the option Browser Starts With to Blank Page. If you want to see an HTML file from your hard disk when you start Navigator, set the option to Home Page Location and in the adjoining text box type or paste your HTML file's URL, which begins with *file:///* (not with *http://*). For example, if you specify the URL of your Bookmarks file—which is something like *file:///Macintosh%20HD/System%20Folder/Preferences/Netscape%20%C4/Bookmarks.html*—you'll see your bookmarks as hot links in an outline format, complete with descriptions you have entered, on a searchable Web page.

File URLs look intimidating, but you can easily copy and paste one by dragging the file (or an alias of it) to a browser window. The file's URL then appears at the

continues on page 152

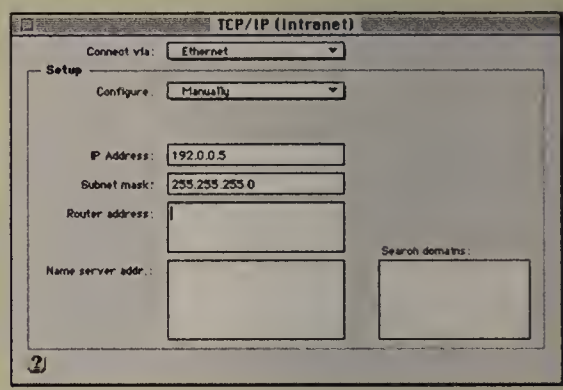
Intranet File Sharing

The Mac OS has file sharing, but what about sharing files with a PC? Cam Giesbrecht of Winnipeg, Manitoba, Canada, points out that it's not too difficult or expensive to connect a Mac and a few Windows 95 machines with a simple Ethernet network and set up an FTP server on the Mac for cross-platform file sharing. As detailed below, you need an Ethernet port on each computer, Ethernet cables, TCP/IP software on every PC, an FTP server program for the Mac, and FTP client programs for each of the PCs.

The most common type of Ethernet port is 10BaseT. Your Mac may have one of these built-in; it may have a built-in AAUI Ethernet port that requires a 10BaseT transceiver; or it may require an Ethernet card with a 10BaseT connector. Most PCs require a 10BaseT Ethernet network interface card (NIC). If you're connecting just two computers, you can use a crossover 10BaseT cable to connect their Ethernet ports, but if you're connecting more than two computers, you need a 10BaseT Ethernet hub and regular 10BaseT cables to connect each computer to the hub. Note that if you're not using a hub, you must boot the PC before starting up the Mac. If the Mac doesn't see another device on the Ethernet network, it switches to LocalTalk networking during start-up and displays an alert telling you what it did. (For more on setting up an Ethernet network, see "Connect Your Workgroup," *Macworld*, August 1997.)

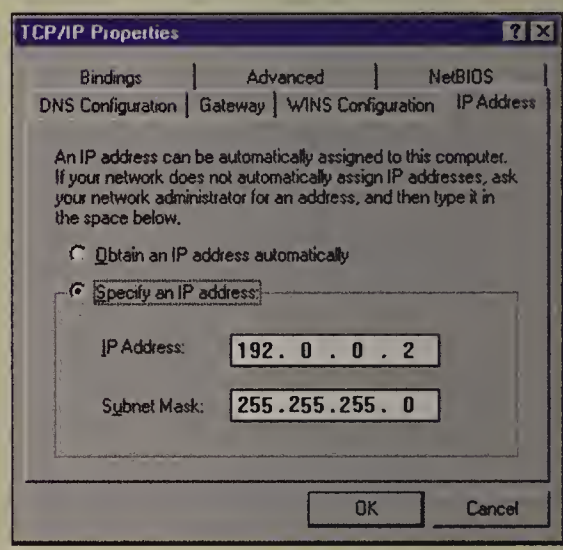
Each computer needs networking software. Make sure the Mac has a TCP/IP control panel version 1.1 or later. It indicates the presence of Open Transport, the enhanced networking software that comes with System 7.5.3 and later. (If the Mac has a MacTCP control panel, you can use it instead, but it's older and harder to configure so we won't cover it here.) On the PCs, make sure the network component for TCP/IP is present in Windows 95's Network control panel. If it's missing, click the Add button, click Protocol, click Microsoft, and finally click TCP/IP.

1 For the computers to communicate over your Ethernet network, you must give each one a numerically unique IP address. On the Mac you use the TCP/IP control panel. Since its current settings probably get you on the Internet, you should save them as a named configuration and create another named configuration for the intranet settings. Use the Configurations command in the TCP/IP control panel's File menu to duplicate the current configuration, rename the duplicate, and make it active. Then set the TCP/IP control panel's Connect Via option to Ethernet, the Configure option to Manually, the IP Address to 192.0.0.X (where X is a number between 1 and 255 that's not used by another computer), and the Subnet Mask to 255.255.255.0 (leave the other options blank). Close the TCP/IP control panel and answer yes when asked if you want to save changes. To reconfigure the TCP/IP settings later, open the control panel and choose a named configuration with the Configurations command.



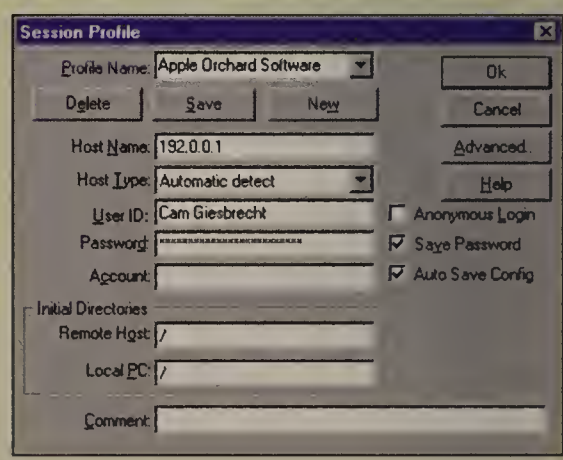
2 On each Windows 95 computer, open the Network control panel and bring up its TCP/IP Properties dialog box. In the IP Address section of that dialog box, select Specify An IP Address, type 192.0.0.X (making the last number unique) for the IP Address, and type 255.255.255.0 for the Subnet Mask.

For the FTP server program, you can use the shareware NetPresenz from Stairways Software (*www.stairways.com*). As explained in the NetPresenz documentation, the files you want to share go into a folder named Pub on the Mac that's running NetPresenz. You can set that folder's access privileges exactly as you would for Mac OS file sharing. Briefly, you use the Users & Groups control panel to allow (or prevent) guest access and to identify registered users and their passwords. You use the Finder's Sharing command on the Pubs folder to designate which registered user is the folder's owner and what the owner's privileges are; to designate a registered user or group with special access privileges; and to designate guests' access privileges. For details, check the Macintosh Guide in the Finder's Guide menu.



3 To access the server's Pub folder, a Windows 95 computer can use the Winsock FTP client program by John A. Junod (*www.ipswitch.com*). In that program's Session Profile screen you set Host Name to the Mac's IP address and Host Type to Automatic Detect. The User ID and Password must correspond to a user in the Mac's Users & Groups control panel, except for guest access. In that case the user name should be Anonymous and the password can be anything. Enter a single slash for each of the Initial Directories settings to see the server's Pub folder contents and the PC's current directory when you first connect to the server.

Macs could access the server's Pub folder with an FTP client such as Anarchie or Fetch, but it's easier to use Mac OS file sharing (through the Chooser).



SOFTBANKforums

Successfully creating and using new technology requires forums that bring together the best buyers and sellers in the world to share ideas, debate issues and shape the direction of the market. From these interactions come the purchase of new products, the insights to use technology in innovative ways and the money to fund new ventures...the ability to develop the next generation of technology solutions. Providing these forums is the business of SOFTBANK Forums.

Where Technology's Best Minds Meet

SOFTBANKforums NETWORLD+INTEROP

STRATEGIC NETWORKS

INTEROP GRADUATE INSTITUTE

SOFTBANKforums commUnity

For the Enterprise Internetworking Community

SEYBOLD SEMINARS

SEYBOLD PUBLICATIONS

SEYBOLD CONSULTING

For the Publishing Professional Community

Windows NT INTRANET Solutions

WINDOWS WATCHER

For the Windows Community

INTERNET EXPO BUSINESS

Web INNOVATION

JavaOne

For the Internet Developer and Business Communities

HELP DESK INSTITUTE.

SUPPORT SERVICES CONFERENCE & EXPO

SOFTBANK FORUMS Interactive CONFERENCE & EXPO

SSPA

TECHNOLOGY PERFORMANCE MANAGEMENT

SkillTech PROFESSIONAL SEMINARS

For the Technology Support and Training Community

SOFTBANK Forums_303 Vintage Park Drive_Foster City_California_94404-1138_ph 1 800 488 2883_www.sbforums.com

top of the browser window in the Location box, from which you can copy it. Next you bring up the General Preferences dialog box and paste it into the Home Page Location text box. (If you're wondering what all those %20 codes are, they're blank spaces in your file, folder, and disk names.)

Clipping Files

Q April's *Quick Tips* explained how to make a start-up message from a clipping file but said nothing about how to make the file. I would like to know how to make a clipping file.

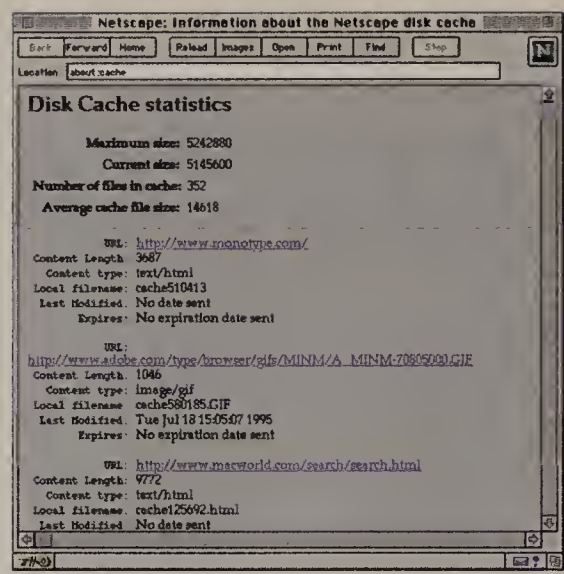
BECKY VOOR VART
Omaha, Nebraska

A Select part of a document that you want to make into a clipping file and try to drag it to the desktop or to the icon or window of a folder or disk. If the application you're dragging from supports drag-and-drop editing between applications, the Finder creates a clipping file containing what you dragged. If nothing happens, or if the selection changes when you try to drag to the desktop, the application you're dragging from doesn't work with drag-and-drop editing. In that case you can make a clipping file by selecting, copying, and pasting into a document of an application that *does* work with drag-and-drop editing, and dragging to the desktop from there. Applications that work include recent versions of SimpleText, Note Pad, Stickies, and the Scrapbook; Eudora; Claris's Emailer, ClarisWorks, and FileMaker Pro; and Corel's WordPerfect (but not Microsoft Word or Excel). You can create clipping files of text, pictures, or sounds.

Invisible-File Aliases

Q I'd really like to have an alias of the Desktop Folder in my Apple Menu Items folder so that I can easily access desktop files from any program. Right now I can access the Desktop Folder as a submenu of the Apple menu because I have an alias of my hard disk in the Apple Menu Items folder, but I'd like to have the Desktop Folder on the Apple menu itself.

IAN LEVY
Arcata, California



Find Lost Bookmarks An easy way to find recently visited sites, writes Gib Kennen of Dayton, Ohio, is to display a directory of Netscape Navigator's cache, complete with linked URLs and file names. Type **about:cache** in the Location box at the top of the browser window or in the Open Location dialog box (⌘-L). To display a list of URLs you've visited and when you saw each one, type **about:global** instead.

A It's hard to make an alias of the Desktop Folder, not just because it's invisible but because the system software is such a special case. None of the disk and file utilities I've tried can make it visible, and none of the alias utilities can make an alias of it. But a disk's Desktop Folder becomes visible when you use file sharing to access the disk from another Mac on your network, if you're on one. So turn on file sharing on your Mac, go to another Mac on your network and use its Chooser to mount your shared hard disk, and use that Mac to make an alias of the Desktop Folder at the root level of your hard disk. The Desktop Folder remains invisible on your Mac, but the alias you created is visible, and you can put it in your Apple Menu Items folder. It's a good idea to lock that Desktop Folder alias in its Get Info window to prevent the alias from becoming invisible. Don't try to find the original item of a Desktop Folder alias by clicking the Find Original button in the alias's Get Info window (unless you want to crash your system).

If your Mac isn't on a network, you'll have to borrow a Mac and temporarily network it to your Mac by connecting the two computers' printer ports with LocalTalk connectors or a serial printer cable. Any Mac will do, even a Mac Plus. For help on configuring a LocalTalk network or file sharing, look in the Mac OS Guide (Macintosh Guide prior to Mac OS 7.6), located in the Guide menu when the Finder is the active application.

Fix Unreadable Floppies

TIP Getting the dread message "This disk is unreadable by this Macintosh. Do you want to initialize the disk?" after inserting a once-good floppy disk? Possibly the floppy was formatted or written on a different Mac, or is an old archive disk with essential data. A trick with Apple's Disk First Aid utility works in most cases to read and repair floppies that have become unreadable. Disk First Aid is included with the system installation disks as well as from Apple's online software library (*www.info.apple.com*).

When you get the "disk is unreadable" message, immediately eject the disk and open Disk First Aid. With Disk First Aid as the active application, insert the problem floppy again. In Disk First Aid's window, select the floppy's icon and click the Verify button. When Disk First Aid finishes verification, it should tell you that the disk needs repairs. Click the Repair button, and when Disk First Aid finishes, it will probably tell you that it successfully repaired the disk

This trick works only if you insert the floppy while Disk First Aid is the active application and if you have it verify prior to repairing. If you skip the verify step, the repair step ends unsuccessfully.

JOE MORTENSON
Escondido, California

I only panic when I see that "disk is unreadable" message on the second try. The first time I see that dialog box, I eject the disk, give it a good shake and say something nice to it, and try again. Almost always it reads OK.—Ed. m

---

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld Mac OS 7.6 Bible*, fourth edition (IDG Books Worldwide, 1997).

Shareware mentioned in *Quick Tips* is available from Macworld Online (*www.macworld.com/more/*) or America Online (keyword *Macworld*).

We pay from $25 to $100 for tips on how to use Macs, peripherals, or software. Send questions or tips to *quicktips@macworld.com* or Macworld Quick Tips, 501 Second St., San Francisco, CA 94107. All published submissions become the sole property of *Macworld*. Due to the high volume of mail received, we can't provide personal responses.

PU UPGRADES
STARTING AT $479

Your PowerMac™ is One Year Old.

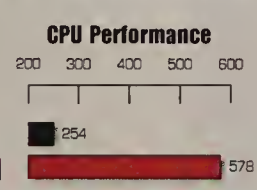
In Dog Years, It's Seven.

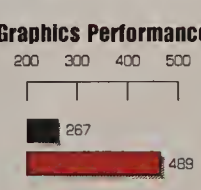
In Computer Years, It's Already Dead.

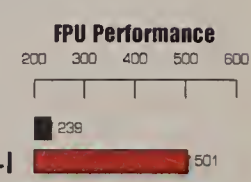
XLR8 = CPR For Your CPU

MacUser UK
RATED

XLR8 MACh Speed™ 233 MHz 604e Upgrade Card Test Results







MacBench 4.0 results using PowerMac 9500, 16 MB RAM, on board SCSI, no hardware disk cache, 512K disk cache, running System 7.6. All products used in this test were shipping versions available to the public. All tests were performed by the XLR8 division of Interex. Ziff-Davis makes no representations or warranties as to the results of this test.

SEE-US-AT
Macworld BOOTH
EXPO #5219
BOSTON

You sink thousands of dollars into a cutting edge system– it seems as soon as you set it up, it's obsolete. Give your prematurely outdated machine the same or better performance than the newest, fastest PowerMacs and clones. XLR8 can bring your Mac back from the dead for a fraction of the cost of a new machine. With the world's best accelerators, CPU upgrade cards, video acceleration cards and high speed L2 cache, XLR8 has everything you need to make your Mac young again.

XLR8
by INTEREX®

BECAUSE FASTER IS ALWAYS BETTER™
www.XLR8.com

Official Trade Show Supplier Of:
MetaTools®

Available at Cyberian Outpost • Dartek • Express Direct • Mac Mall • Mac Warehouse • Mac Zone
Or Call 1•888•XLR8TOR • Toll Free Support 1•800•513•9744

MacBench is a registered trademark of Ziff-Davis Publishing Company • All other trademarks are property of their respective owners.

Circle 18 on reader service card

It's easy to see how

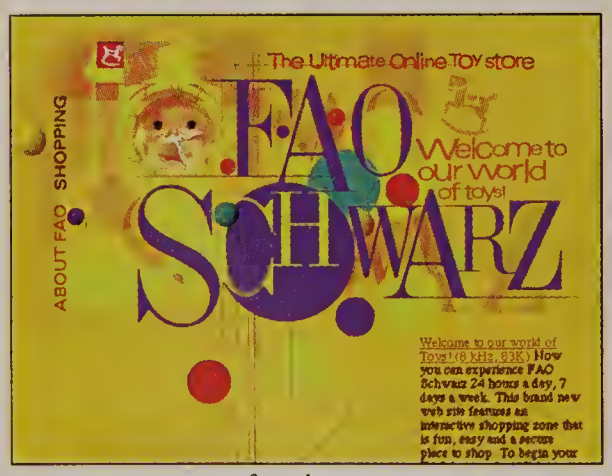
ADOBE® PHOTOSHOP®

improves your

WEB SIGHT.

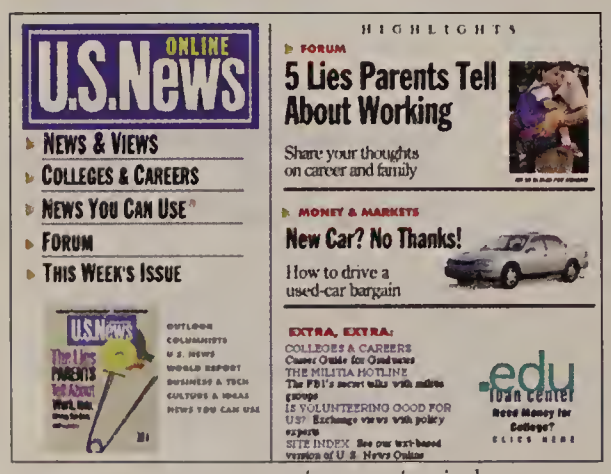
www.dia.org

www.porsche-usa.com



www.faoschwarz.com

www.ebauer.com



www.usnews.com/usnews/main.htm

www.americanfunds.com

Seeing is believing. Adobe® Photoshop® 4.0 is the world's leading image editing tool for web graphics. The sites on your left are proof. With our new Actions feature, U.S. News can easily batch process hundreds of images. The Detroit Institute of Arts appreciates how Photoshop supports all the most popular web files, like PNG, Progressive JPEG, GIF89A and PDF. And to make the creation of great-looking sites easier, award winners like Porsche make good use of all our precision tools, including Grids and Guides. For more information, contact us at 1-800-492-3623, offer code 35600, or visit www.adobe.com.

Adobe, the Adobe logo, Photoshop and the tagline "If you can dream it, you can do it" are trademarks of Adobe Systems Incorporated. FAO Schwarz website designed by Avalanche Systems. All other trademarks are property of their respective owners. © 1997 Adobe Systems Incorporated. All rights reserved.

If you can *dream* it, you can *do* it.®

Adobe

See Us At The Macworld Expo Booth#5434

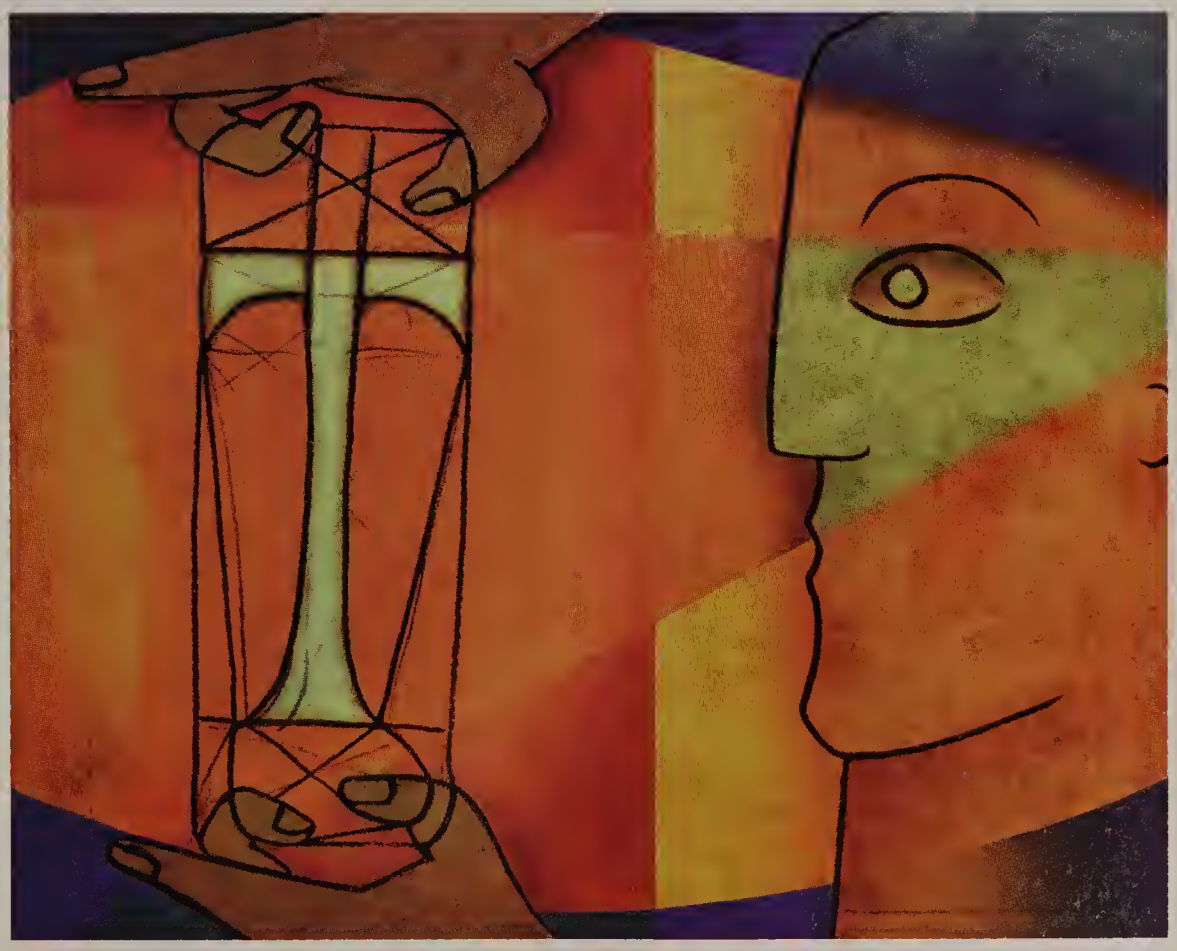
Circle 253 on reader service card

Media

Improving Your Web Typography, Part 1

FOUR SIMPLE WAYS TO GET BETTER WEB TYPE

by Jim Heid



The World Wide Web is an exquisite cacophony of communications, but it isn't always a visual feast. One problem is the varying experience levels of the creators: many Web-page designers aren't familiar with the rules and conventions of good design and typography. But another problem is HTML, which was designed to describe a document's structure, not its formatting. To put it conversationally, HTML was designed to say things like "This is a heading" and "This is body text," not "This is 24-point Helvetica Bold" and "This is 12-point Times."

HTML's emphasis on structure rather than presentation has helped make the Web the platform-neutral medium that it is. Because the ultimate formatting decisions are up to the browser, an HTML page can be rendered by a text-only terminal, a personal computer, a workstation, a TV set, a voice synthesizer, or a Braille converter.

Still, designers have cried for more formatting control, and Netscape and Microsoft have responded. Both companies have created new HTML tags for their respective browsers, and most of these tags have become part of the latest HTML standard.

At the same time, Web designers have come to rely on tricks for controlling the width of text columns as well as vertical and horizontal spacing—more formatting controls that are missing or limited in HTML.

This column begins a two-part series on Web typography. This month, I look at four simple ways to improve Web type—techniques that are easy to implement, work on most browsers, and are compatible with older browsers. Next month, I'll focus on the future and on some developments that promise far more control over Web typography. For examples and links to more information sources, see *www.macworld.com/more/*.

Times Up

It's time to move beyond Times, the browser-default font in which all text in an HTML page appears (unless changed using the browser's preferences commands). With the **<font face>** tag, supported by versions 3.0 and later of both Microsoft Internet Explorer and Netscape Navigator, you can specify that text appear in a specific font; for example, **<font face="Helvetica">** formats the text that follows in Helvetica (see "Web-Page

continues

Web-Page Makeover

HTML's emphasis on structure over presentation makes it a platform-independent medium but allows browser settings to affect a page's look. Designers get more control over the layout and typography of their pages with a few simple tags that are becoming standard. (Check out these samples live at *www.macworld.com/more/*.)

Plain HTML

The **<hr>** tag lets you add horizontal rules, but you can't control their color.

Your text appears in whatever font your site's visitor happens to have set as the browser default.

Line lengths change as visitors resize the browser window.

You can add paragraph breaks, but you can't control vertical spacing precisely.

HTML with Typographic Tricks

This colorful rule is a single-pixel GIF.
<img src="dot_pink.gif" width= 490 height=4 vspace=12>

These typefaces and sizes were specified with the **<font>** tag's face and size attributes. For the body text, for example, I used Trebuchet, specifying fall-back fonts of Helvetica, Arial, and Geneva.
<font face="Trebuchet MS,Helvetica, Arial,Geneva,san-serif" size=3>

This transparent, single-pixel gif acts as a spacer.
<img src="dot_clear.gif" width=1 height=1 vspace=5>

To maintain fixed line widths, I used borderless tables whose dimensions are specified in absolute pixel values.
<table width=480 border=0 align=left cellpadding=0 cellspacing=0>

Makeover" and "HTML-Tag Cheat Sheet"). Browsers that don't support the tag ignore it; the text simply appears in the default font.

Fall-Back Fonts There's one big catch to the **** tag: for the text to appear in the desired font, that font must be installed on the visitor's system. If it isn't, the text appears in the browser's default font. Fortunately, you can specify what I call *fall-back fonts:* ones to use if your first choice isn't available. For instance, **** tells a browser "Use Impact if you have it; otherwise, use Helvetica." You can specify as many fall-back fonts as you like; a browser uses the first one it finds. If it finds none, it reverts to its default.

Platform Problems Although certain fonts—Times, Helvetica, Courier—are standard on both the Mac OS and the Windows platforms, they may go by different names. For instance, Windows' Helvetica equivalent is named Arial. And each platform has fonts that aren't available on the other—examples include the Mac OS's Geneva and Windows' MS Serif.

If you're using these fonts, try to specify rough equivalents that exist on The Other Side—for example, ****.

Bill Gates's Type Microsoft has done much to advance the cause of good Web typography. The **** tag debuted in Microsoft Internet Explorer. More recently, Microsoft created a standard set of screen-optimized TrueType fonts and made them available for free downloading from *www.microsoft.com/truetype/*. (Some of these fonts are included with the Mac OS and Windows versions of Internet Explorer 3.X.) Fill out a simple licensing form on Microsoft's site, and you can even post these fonts on your own site for others to download.

Variations in Style You can't access style variants such as bold and italic using ****; for instance, **** doesn't work. Instead, use **** for bold and **** for italics, as in *****your bold italic text here*****.

Size Up Your Text

The first HTML versions provided little control over type size. You could create large, bold headings with the heading tags (for example, **<h1>** and **<h2>**), but you couldn't control the size of those headings or of a page's body text.

Things have improved—some. Currently, there is no broadly supported way to specify exact point sizes for text, but you can control relative type size with the **** tag's **size** attribute. Its values range from 1 (smallest) to 7 (largest); each step up in size is an increase of 20 percent.

With ****, text normally appears in a default size of 3. (You can define which of the seven values is the default with the **<basefont>** tag—for example, **<basefont=4>**). You can create text larger or smaller than the default size by specifying an absolute size (for example, ****) or by specifying a relative size (for example, **** yields text 20 percent larger than the current default size).

HTML-Tag Cheat Sheet

Here is a quick recap of tags you can use to improve your Web typography. Some, particularly **<table>**, rely on attributes too numerous to list here. A superb reference for all HTML tags is *HTML: The Definitive Guide*, second edition (O'Reilly & Associates, 1997).

Tag	Example	Result
 	text	Specifies a typeface (secondary faces are fall-back faces).
	text	Specifies bold.
	text	Specifies italic.
<basefont>	<basefont=4>	Specifies one of HTML's seven relative sizes as the default type size.
	text	Specifies one of HTML's seven relative sizes.
	text or *text*	Specifies increase or decrease from default font size.
<img>	<img src="dot.gif" hspace=8 vspace=18>	The hspace and vspace attributes add space around a transparent single-pixel GIF to control spacing.
	<img src="dot_pink.gif" width=490 height=4>	The height and width attributes stretch a colored single-pixel GIF to create rules and boxes.
<table>	<table width=400>	Specifies line width using absolute pixel values.
border	border=0	As part of table tag, turns off cell borders.

Absolute versus Relative Using **<basefont>** in combination with relative font sizes gives you the flexibility to change type sizes for a whole page in one fell swoop: you simply change the page's **<basefont>** tag, and all the type within that page changes, while retaining relative sizes. If you use absolute sizes throughout a page, you must manually edit every **<font size>** tag.

Bigger Text for Aging Eyes On Mac OS browsers, body text is on the small side. Many Web sites bump up the size by using **<font size=+1>**. (Macworld Online does this for daily news stories.) This yields an attractive size on Macs, but on Windows machines, where fonts display larger than on the Mac OS, the text appears a bit bold and clunky for my taste. Let your eyes and your target platforms be your guide—or use smart server-side software such as Maxum's $195 NetCloak (630/830-1113, *www.maxum.com*; see *Reviews*, January 1997) to tailor pages for each platform.

Simulating Small Capitals When setting body text, top-notch typographers often use small capitals for acronyms (NASA, CPU) or abbreviations (M.D.) to avoid having huge capitals overwhelm the surrounding text. You can simulate small capitals with **<font size=-1>**.

Choosy Designers Choose GIF

HTML doesn't allow precise control over vertical and horizontal spacing. You can add extra line spaces with the **
** (break) tag and create indents by using the nonbreaking space (** **) code, but there's no tag for adding, say, 18 points of extra space between two paragraphs or indenting a line 12 points.

For these and other spacing chores, Web designers use the *single-pixel GIF* file. This is a graphic containing just a single, transparent pixel. It's tiny—about 50 bytes—so it downloads in a flash. And by using it along with the **<img>** tag's **hspace** and **vspace** attributes, you can specify extra horizontal and vertical space.

Use It Often You can use a single-pixel GIF repeatedly with no performance loss. It downloads just once and is stored in the browser cache. Subsequent uses retrieve the same GIF from the cache.

From Bars to Borders You can create bars, borders, bullets, and buttons by stretching colored single-pixel GIFs with the **<img>** tag's height and width attributes. A 1-by-1-pixel graphic downloads much faster than, say, a 20-by-400-pixel one. And because the graphic consists of a solid color, stretching it doesn't introduce any distortion.

Put It on the Table

HTML tables were designed to present tabular data such as financial figures or sports scores, but they've become essential design tools. You can use them to create multiple column layouts, to indent text from the browser window's left edge, to create site-navigation tool bars, and much more. And HTML layout tools make it easy to tweak tables to get the results you want (see "Web Publishing Made Easy," *Macworld*, August 1997).

Line-Length Decisions For best legibility, format your body text so that you have roughly 8 to 12 words per line. Specify table width using absolute pixel values rather than percentages; that way, the line endings won't change when surfers resize their browser windows.

Kill Those Borders Use the **border =0** attribute to turn off the ugly, superfluous borders that browsers normally put around each table cell.

More Control Ahead?

Now that I've told you about a few of the formatting tricks Web designers use, it's time to tell you that their days are numbered. *Cascading style sheets* (CSS) promise far more control over Web typography. I'll look at them and some other layout alternatives next month.

Why bother with formatting workarounds when real formatting alternatives are available? Compatibility. Unlike CSS, the techniques I've described here work in all current browsers and in most older versions of Navigator and Internet Explorer. And they don't cause formatting problems with browsers that don't support them. In a world where standards change faster than a politician's mind, simple tricks that work are worth their weight in gold. **m**

Contributing editor JIM HEID covers Web typography, style sheets, and more in his latest book, *HTML & Web Publishing Secrets* (IDG Books Worldwide, 1997).

Publishing Workshop

Spacing Out with Your Type: Leading and Kerning

by David Blatner

In this fast-paced world of six-second sound bites and instant oatmeal, printed materials have to get your message across quickly and with a minimum of effort on your reader's part. And because text is such an integral part of most printed matter, it can really pay to learn a little (or a lot) about typography. Two of the most commonly misunderstood and ignored elements in typography are leading, the amount of space between lines of type, and kerning, the amount of space between individual characters.

Leading

The term *leading* (rhymes with *wedding*) originally referred to strips of metal (lead) that typesetters placed between lines of type in order to space them out. Leading, or line spacing, is almost always specified in terms of the space from one baseline to the next (the baseline is the imaginary line that the text sits on): for instance, 11/15 describes 11-point type with 15 points of space from baseline to baseline.

When you read, the spaces between lines isolate the line you're reading from the lines above and below it. Each row of space guides your eyes from the end of one line to the beginning of the next. If there is too little or too much space, you get lost along the way and have to work too hard to take in the information.

Most programs automatically set leading at 120 percent of text size, so 10-point text, for example, gets 12 points of leading. Unfortunately, programs usually use the largest character in a line to set the leading, so if you enlarge one character, the leading for that line differs from that of the rest of the paragraph. The solution is to specify absolute values for leading (rather than relative or automatic values) to force the program to use the same leading throughout a paragraph.

In most desktop publishing programs, leading is a paragraph format; that is, a change in leading affects the entire paragraph. Adobe PageMaker does let you set leading on the character level; but you typically want an entire paragraph to have the same leading.

Kerning

The human eye is extremely good at recognizing breaks in a regular pattern. On encountering too much or too little space between characters within a word, the reader's eye stumbles. Kerning is the art of adjusting the space between characters in order to ensure a smooth flow of information from the text to the brain. Good kerning brings the characters within the word together into a single unit.

Fortunately, the font designer and the page-layout software take care of most kerning for you via automatic kerning pairs. For instance, a typeface may have a built-in kerning pair for the characters **Yo**, so that the **o** tucks under the arm of the **Y**. PageMaker and QuarkXPress read these

THE COLOR OF TYPE

When looking at type, it's crucial to pay attention to the *color* of a word, a line, a paragraph, or a page. When designers talk about the color of these elements, they mean the overall value of gray you see. The easiest way to see this is to squint your eyes so the page looks a bit out of focus. Every change you make to type—from selecting a font or size, to assigning leading, to fine-tuning the kerning of character pairs—alters the color of type.

Word Color Kerning is a major factor in the color of a word. In the top example below, notice how areas where spacing is inconsistent attract your eye. Kerning lets you even out the space between letters to give words consistent color. The kerned example (bottom) is easier to read quickly as a single word.

Impression
Impression

6-point Minion, 6-point leading

For more on typographical issues check out *The Mac Is Not a Typewriter* by Robin Williams (1990, Peachpit Press) and *Stop Stealing Sheep* by Erik Spiekermann and E.M. Ginger (1993, Adobe Press).

6-point Minion, 9-point leading

For more on typographical issues check out *The Mac Is Not a Typewriter* by Robin Williams (1990, Peachpit Press) and *Stop Stealing Sheep* by Erik Spiekermann and E.M. Ginger (1993, Adobe Press).

6-point Minion, 11-point leading

For more on typographical issues check out *The Mac Is Not a Typewriter* by Robin Williams (1990, Peachpit Press) and *Stop Stealing Sheep* by Erik Spiekermann and E.M. Ginger (1993, Adobe Press).

Paragraph Color Leading is a major factor in the color of a paragraph (or a page) of type. As in the examples above, you can make text appear dense (top left), medium gray (bottom left), or light (top right) simply by changing the leading to bring the lines of type closer together or push them farther apart.

kerning pairs and apply them throughout your document. (Note that many word processors ignore kerning pairs—just one more reason to use a page-layout application to get good-looking type.)

Nonetheless, you almost always have to perform manual kerning—especially for larger headline text—because the automatic kerning pairs rarely cover every pair possibility. The key is to look at each word's color (see "The Color of Type"). Is it consistent? Does your eye jump to one spot that appears too light (too much space) or too dark (too little space)? You need to remove or add space to eliminate those confusing spots.

Adjusting Automatic Kerning

If you find yourself doing *a lot* of manual kerning, it might be time to go in and change the font's automatic kerning pairs yourself. You can use software such as Macromedia's Fontographer to create your own kerning pairs within a font. Just remember that you're customizing the font, so if you move a document containing that font to another computer—say, at a service bureau—you have to send the font, too.

Or you can use QuarkXPress's built-in kern-pair editor. These kerning pairs are saved in the document itself (and in the XPress Preferences file), so they work only in QuarkXPress documents, but you don't have to worry about moving fonts around.

Just remember, while the computer can spec leading and kerning automatically, you don't have to accept these settings. Ultimately, where design is concerned, your eye is a better judge of space than your Mac. **m**

DTP expert DAVID BLATNER can be reached at *david@moo.com*.

Kerning Tips

■ Characters should rarely touch each other, though if it looks better, go for it.

■ Apply varying degrees of kerning to make the best use of your time. Automatic kerning is better than none at all; apply it to everything. Adobe PageMaker's Expert Kerning plug-in applies "manual" kerning—based on character shapes and user-specified parameters—to text within a selection. It's not perfect, but it can save time and improve broad areas of text. In areas where letterspacing is most noticeable—say, headlines—it's worth your while to manually fine-tune the automatic kerning.

■ Words that are in all caps or reverse type (white letters on a dark background) need a little extra space between each character. Use tracking (sometimes called range kerning) to achieve this effect.

■ How much space does each character in a word need? It depends on the character shapes involved. Here are some general, shape-based guidelines.

No kerning

In the Yellow Room

Auto kerning (using font's kern pairs)

In the Yellow Room

Manual kerning

In the Yellow Room

Kerning Rules of Thumb

Letter Shapes	Pair Examples	How to Kern
Two verticals ▮▮	IM, li	Use standard kerning
Vertical and round ■●	HO, le	Kern in a bit
Two rounds ●●	OG, co	Kern in tightly
Hanging ▼●	We, AT	Kern in very tightly

Leading Tips

■ In general, don't let descenders (like the tail of the **y**) and ascenders (like the stem of the **h**) touch; however, in some headline text this can work.

■ Set the leading so that the space between each line is bigger than the spaces between the words to keep the reader's eye from getting lost.

7-point GillSans, 5.5-point leading

Now my charms are all o'erthrown, and what strength I have's my own, which is most faint. Now 'tis true I must be here confined by you, or sent to Naples.

7-point GillSans, 7-point leading

Now my charms are all o'erthrown, and what strength I have's my own, which is most faint. Now 'tis true I must be here confined by you, or sent to Naples.

■ The longer the line of text, the more leading you need to guide the reader's eyes.

9-point Industrial736 It BT, 9-point leading

Now my charms are all o'erthrown, and what strength I have's my own, which is most faint. Now 'tis true I must be here confined by you, or sent to Naples.

9-point Industrial736 It BT, 11-point leading

Now my charms are all o'erthrown, and what strength I have's my own, which is most faint. Now 'tis true I must be here confined by you,

■ Automatic leading can create inconsistent line spacing if all characters aren't in the same size type; specify absolute leading to force even spacing.

7-point Bembo, 12-point dingbats, auto leading

Full fathom five thy father lies, of his bones are coral made ✣ Those are pearls that were his eyes; ✣ Nothing of him that doth fade, but doth suffer a sea-change into something rich and strange. Sea-nymphs hourly ring his knell. Ding-dong.

7-point Bembo, 12-point dingbats, 9-point leading

Full fathom five thy father lies, of his bones are coral made ✣ Those are pearls that were his eyes; ✣ Nothing of him that doth fade, but doth suffer a sea-change into something rich and strange. Sea-nymphs

■ Don't be afraid to use halves or tenths of a point when specifying leading; often a minor change makes the text look just right.

■ Leading doesn't have to be greater than text size; headlines often benefit from tight leading.

24-point leading Say 28-point type
Cheese

Graphics Workshop

Combining High-Res Line Art with Color Textures

by Cathy Abes

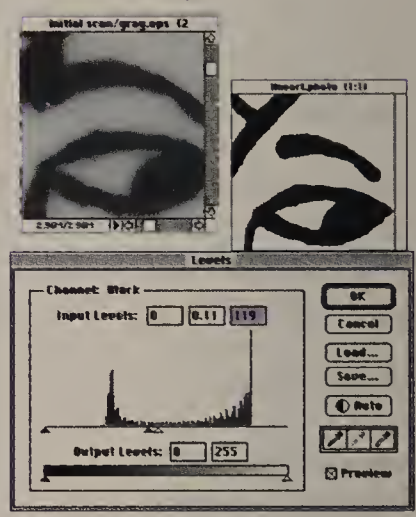
ARTIST Christopher Ching is an artist and illustrator based in New York City. His work, which combines traditional and digital media, has appeared in publications such as *Macworld*, *PC Magazine*, *Financial Executive*, and *Golf Pro*. He's currently putting together his Web site at *members.aol.com/ching416/*.

HOW IT WAS DONE Like many digital artists, Ching often combines line art with color textures. To keep the lines sharply defined, the line art should be output at a high resolution: at least 600 dpi. But working with color textures in a 600-dpi Adobe Photoshop file of, say, 4 by 6 inches would be daunting if not impossible, since the file could be as large as 50MB. And 600 dpi would be overkill for the color areas of the image, since they would reproduce just fine at 300 dpi.

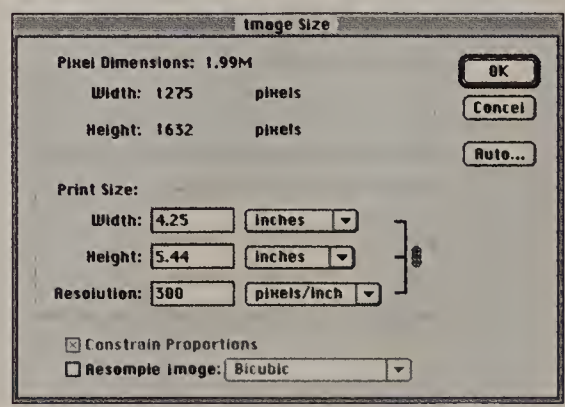
An easy way to circumvent this problem is to break the file into two parts: a high-res file for the line art and a much lower-res file for the color. To produce the composite image you place the two files one on top of the other in QuarkXPress. This technique allowed Ching to reduce file size significantly: the 600-dpi bitmapped file was 1MB, and the 300-dpi CMYK file was 10MB; by contrast, a 600-dpi CMYK file containing both line art and color would have been a whopping 41MB.

THE TOOLS Hardware: Power Macintosh 7100/66 with 56MB of RAM and 250MB internal hard drive; Apple 15-inch MultiScan color monitor; Mirror 750 external hard drive; Iomega Zip drive; ScanMaker IIHR flatbed scanner; Fast Mac V.34 28.8 fax modem; Epson Stylus Pro ink-jet printer. Software: Adobe Photoshop 4.0; QuarkXPress 3.2. m

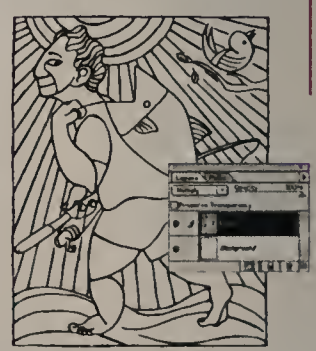
❶ The original sketch was scanned in gray-scale mode at 600 dpi. Scanning at a higher resolution preserved the rough quality of the artist's pencil line-work on vellum.

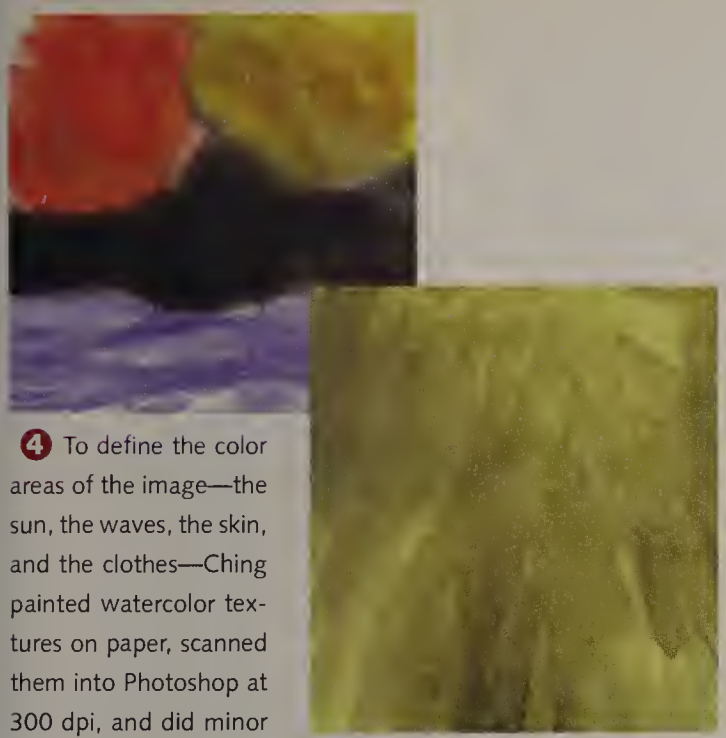


❷ Before converting the file to bitmap mode, Ching adjusted Levels to control line thickness and to boost contrast. Then he saved the line art in EPS with Transparent Whites checked This allowed the color to show through in the final image.



❸ To create a template for filling in the color areas, he duplicated the line art, converted that to gray scale with a size ratio of 2, and halved the resolution to 300 dpi, with proportions constrained to keep the same size and dimensions as the high-resolution line art. Then he selected all, cut, switched to CMYK Colors, added a new layer with mode set to Multiply, and pasted. This gave him an empty background layer with the line-art layer above it.





4 To define the color areas of the image—the sun, the waves, the skin, and the clothes—Ching painted watercolor textures on paper, scanned them into Photoshop at 300 dpi, and did minor color adjustments.

5 Ching pasted each color texture into a separate layer below the line-art layer. He then trimmed away the excess area using selections he made with the path tool.

6 Once he'd completed the color background areas, he deleted the line-art layer (it was there solely to act as a template) and flattened the remaining color layers.

7 In QuarkXPress, he placed the color image (setting the background of the picture box to None). Next, he chose Step and Repeat from the Item menu; he set the repeat count to 1 and both offsets to 0 (to place a duplicate box directly on top of the existing one). With the new box still highlighted, he placed the final line-art image.

A pointed reminder to stay on top of publishing technology.

The publishing landscape is dramatically changing. New technologies are redefining graphic design, the Internet, photography, prepress and printing. Their widespread impact will be felt for years to come.

Seybold San Francisco, the world's most comprehensive and respected publishing forum, gives you an unobstructed view of these breakthrough technologies. From innovative new products to money-making best practices, we'll show you exactly what it takes to be a 21st-century publisher.

- 60+ Conference Sessions provide an intensive look at new markets/solutions
- Special Interest Seminars guide you to profitable, emerging technologies
- In-depth Tutorials quickly raise your expertise with the latest publishing tools
- 350 top companies demo thousands of products for your business

FREE GUIDE & EXPO PASS SAVE $50

No one under 16 admitted, including infants. For your detailed Advance Program Guide and a FREE 3-day Exposition pass:

CALL: 1-888-800-8922
INT'L: +1-415-372-7072
WWW.SEYBOLDSEMINARS.COM

SEYBOLDSF
PUBLISHING 97

MOSCONE CENTER

Main Conference:	Sept. 29-Oct. 1, 1997
Seminars/Tutorials:	Sept. 29-Oct. 3, 1997
3-Day Exposition:	October 1-3, 1997

SW97AD10

© 1997 SOFTBANK Forums. Presented by Seybold Seminars. All names are the property of their respective holders.

Macworld

Advertiser Index

Say you saw it in Macworld. To purchase products advertised in this issue call the phone numbers below or use the reader service number for our Product Information Card located after the product index.

Page No.	Advertiser	Reader Srvc. No.	Phone
100	Active Arts	50	800/980-9468
11	Adobe	253	800/521-1976
91	Adobe	252	800/521-1976
154	Adobe	251	800/521-1976
43	Adrenaline Software	23	—
35	AEC Software	203	800/450-1982
12	AGIO Designs	—	800/688-2446
12	Aladdin Systems	21	408/761-6200
88	Aladdin Systems	22	408/761-6200
30,31	Alliance Peripheral Systems	61	800/874-1428
186,187	Alliance Periphera Systems	62	800/874-1428
26	Alsoft	140	800/257-6381
45	American Power Conversion	72	800/788-2208
6	Anthro	—	800/325-3841
14,15	Apple Computer	—	800/538-9696
22,23	AppleSoft	–	—
89	ATI Technologies Inc	256	—
147	Auto-des-sys	49	—
99	Avery Dennison	—	800/477-4404
101	Avery Dennison	—	800/477-4404
103	Avery International	—	800/477-4404
196	Big Mac Computers	101	800/761-1999
192	Bottom Line Distribution	63	800/990-5699
9	Caere Corporation	69	800/535-SCAN
105	Caere Corporation	68	800/535-SCAN
78	CE Software, Inc.	170	800/579-9729
178,179	ClubMac	96	800/CLUB-MAC
169-171	Computer Discount Warehouse	2	800/509-4239
107	Corel Corporation	78	800/836-3729
47	Dantz	26	800/225-4880
59	Dataviz	79	800/780-1466
19	Deneba Software	57	800/733-6322
52	Diamond Communications	83	—
24	Diehl Graphsoft	46	410/290-5114
175	DigiCore	67	800/858-4622
69	ENCAD, Inc.	65	800/45-ENCAD
102	Epson America	—	800/BUY-EPSON
54,55	Epson America	—	800/BUY-EPSON
86,87	Epson America	—	800/BUY-EPSON
168	Express Direct	81	800/765-0020
71	Extensis	13	800/796-9798
27	Fractal Designs	5	800/311-6714
61	Fujitsu	202	800/626-4686
49	Hitachi	82	—
144	Hitachi NSA	74	800/441-4832
141	Infowave	32	800/663-6222
20,21	Iomega	77	—
72,73	Iomega - Zip	—	—
188,189	J & R Computerworld	282	800/221-8180
BC	Kensington Microware Ltd.	1	800/535-4242
7	Kingston Technology Corporation	201	800/435-0677
177	L.A.Trade	—	800/433-3726
114,115	LA CIE	52	800/999-1332
148	Linotype-Hell	17	800/842-9721
172,173	Mac Bargains	71	80/619-9091
176	Mac Professional Inc	64	800/244-4622
198	MacAcademy	106	800/527-1914
182	MacConnection	145	800/800-3333
190,191	MacMall/Creative Computers	131	800/222-2808
197	MacMarket	258	800/223-4622
180,181	MacNet	68	800/404-9976
13	Macromedia	37	800/945-9179
79	MacSoft	31	800/229-2714
81	MacSoft	28	800/229-2714
83	MacSoft	30	800/229-2714
85	MacSoft	29	800/229-2714
167	MacTell	75	—
194,195	MacWarehouse	150	—
199	Macworld Expo	—	617/361-8000
193	MegaHaus	245	800/786-1184
18	Microspot USA, Inc.	3	800/622-7568
39	Microtek Lab, Inc.	—	800-654-4160
4,5	Motorola Computer Group	207	800/759-1107
10	Orange Micro	33	714/779-2772
76	Orange Micro	34	714/779-2772
75	Phillips Consumer Electronics	15	—
67	PhotoDisc	114	800/528-3472
IFC	Power Computing Corporation	151	800/410-7693
IBC	Power Computing Corporation	161	800/410-7693
174	ProDirect	135	800/524-9952
162	Seybold San Francisco	—	888/800-8922
151	SoftbankForums	—	800/488-2883
116	Sony Corporation	—	800/472-SONY
93-96	Sony Corporation	—	800/472-SONY
77	SPSS INC.	—	800/457-8287
98	Synchronys Softcorp	55	888/777-5600
184,185	The Mac Zone	70	800/436-0606
37	Umax Computer	99	888/625-UMAX
41	Viking Components	233	800/338-2361
126	Vivo Software	4	—
8	VST Technologies, Inc.	73	508/263-9700
16	Xante Corporation	112	800/926-8839
153	XLR8	18	800/XLR8TOR

Macworld Product Index

A quick and easy product index from Macworld. Simply use this index to find the page or advertiser of the products which interest you. Then, use the reader service number for our FastFacts Product Information Card located on the following page.

Page No.	Advertiser	Reader Srvc. No.
SOFTWARE		
BUSINESS		
43	Adrenaline Software	23
35	AEC Software	203
107	Corel Corporation	78
CAD/CAM		
147	Auto-des-sys	49
24	Diehl Graphsoft	46
COMMUNICATION		
59	Dataviz	79
EDUCATIONAL		
100	Active Arts	50
ENTERTAINMENT		
100	Active Arts	50
79	MacSoft	31
81	MacSoft	28
83	MacSoft	30
85	MacSoft	29
GRAPHICS/DTP		
11	Adobe	253
91	Adobe	252
154	Adobe	251
147	Auto-des-sys	49
107	Corel Corporation	78
19	Deneba Software	57
71	Extensis	13
27	Fractal Designs	5
141	Infowave	32
13	Macromedia	37
18	Microspot USA, Inc.	3
67	PhotoDisc	114
MISCELLANEOUS		
22,23	AppleSoft	–
MULTIMEDIA		
13	Macromedia	37
126	Vivo Software	4
OCR		
9	Caere Corporation	69
105	Caere Corporation	68
ONLINE		
126	Vivo Software	4
STATISTICAL		
77	SPSS INC.	—
UTILITIES		
12	Aladdin Systems	21
88	Aladdin Systems	22
26	Alsoft	140
78	CE Software, Inc.	170
47	Dantz	26
141	Infowave	32
98	Synchronys Softcorp	55
HARDWARE		
BOARDS		
89	ATI Technologies Inc	256
10	Orange Micro	33
76	Orange Micro	34
153	XLR8	18
COMPUTER SYSTEMS		
30,31	Alliance Peripheral Systems	61
196	Big Mac Computers	101
168	Express Direct	81
4,5	Motorola Computer Group	207
IFC	Power Computing Corporation	151
IBC	Power Computing Corporation	161
37	Umax Computer	99
DIGITIZERS/SCANNERS		
102	Epson America	—
86,87	Epson America	—
148	Linotype-Hell	17
39	Microtek Lab, Inc.	—
116	Sony Corporation	—
93,96	Sony Corporation	—
DISPLAY		
144	Hitachi NSA	74
114,115	LA CIE	52
EXPANSIONS/UPGRADES		
177	L.A.Trade	—
41	Viking Components	233
HARD DISKS/STORAGE		
186,187	Alliance Peripheral Systems	62
192	Bottom Line Distribution	63
178,179	ClubMac	96
61	Fujitsu	202
20,21	Iomega	77
72,73	Iomega - Zip	—
7	Kingston Technology Corporation	201
114,115	LA CIE	52
193	MegaHaus	245
174	ProDirect	135
41	Viking Components	233
INPUT DEVICES		
BC	Kensington Microware Ltd.	1
116	Sony Corporation	—
93,96	Sony Corporation	—
MICRO PROCESSOR		
IFC	Power Computing Corporation	151
IBC	Power Computing Corporation	161
MISCELLANEOUS		
45	American Power Conversion	72
75	Phillips Consumer El	15
MODEMS		
52	Diamond Communications	83
MULTIMEDIA		
4,5	Motorola Computer Group	207
POWERBOOK		
14,15	Apple Computer	—
8	VST Technologies, Inc.	73
PRINTERS		
69	ENCAD, Inc.	65
54,55	Epson America	—
16	Xante Corporation	112
SECURITY		
45	American Power Conversion	72
SERVICES		
TRADESHOWS/CONFERENCES		
199	Macworld Expo	—
162	Seybold San Francisco	—
151	SoftbankForums	—
TRAINING		
198	MacAcademy	106
ACCESSORIES		
FURNITURE		
12	AGIO Designs	—
6	Anthro	—
MISCELLANEOUS		
99	Avery Dennison	—
101	Avery Dennison	—
103	Avery International	—
MAIL ORDER		
186,187	Alliance Peripheral Systems	62
196	Big Mac Computers	101
192	Bottom Line Distribution	63
178,179	ClubMac	96
169,171	Computer Discount Warehouse	2
175	DigiCore	67
168	Express Direct	81
188,189	J & R Computerworld	282
177	L.A.Trade	—
172,173	Mac Bargains	71
182	MacConnection	145
190,191	MacMall/Creative Computers	131
197	MacMarket	258
180,181	MacNet	68
167	MacTell	75
194,195	MacWarehouse	150
193	MegaHaus	245
174	ProDirect	135
184,185	The Mac Zone	70
MAIL ORDER		233

PRODUCT INFORMATION

FREE

TWO SIMPLE WAYS TO GET

Macworld puts you in touch with the information you need most with two easy options:

1 dial 503.684.5370 Fax In Card

Simply fill In the questionnaire, circle the reader service numbers that correspond to the vendors you would like information from, then fax your form to us at 503.684.5370. FREE product information will be sent to you directly from vendors.

2 postage pre-paid Mail In Card

After filling In the questionnaire, circle the reader service numbers that correspond to the vendors you would like information from, then just drop the postcard in the mail. Vendors will send FREE product information directly to you.

Macworld
THE ESSENTIAL RESOURCE

☐ Check this box to subscribe to Macworld

YOU WILL BE BILLED $24 FOR A ONE-YEAR (12 ISSUE) SUBSCRIPTION (US ONLY) SUBSCRIPTION WILL BE SENT TO NAME AS NOTED BELOW PLEASE CHANGE IF MAILING ADDRESS IS DIFFERENT

PLEASE ANSWER THESE QUESTIONS, CHECK ALL ANSWERS THAT APPLY

1a. For which of the following Mac-related products do you specify, recommend, approve, purchase or influence the purchase?

1b. Which of the following do you plan to purchase in the next 12 months? (Check all that apply.)

	Purchase Involvement		Plan to Buy
Desktops/PowerBooks	◯	1	◯
Monitors	◯	2	◯
Printers	◯	3	◯
Storage Devices	◯	4	◯
Networking/Data Communications	◯	5	◯
Internet/Intranet products/services	◯	6	◯
Software: business/productivity	◯	7	◯
graphics/design	◯	8	◯
interactive publishing/ multimedia	◯	9	◯
entertainment	◯	10	◯
education	◯	11	◯
other software	◯	12	◯
Any other products	◯	13	◯

2. Are you employed, and involved in purchase decisions for 5 or more Macs? ◯ Yes (1) ◯ No (2)

3. What's Your Opinion?
What are your main frustrations in making Mac-related purchase decisions?

- ◯ 1. Lack of expertise in assessing products
- ◯ 2. Difficulty in installing or using products
- ◯ 3. Too many choices
- ◯ 4. Not enough choices
- ◯ 5. Unclear needs
- ◯ 6. Concern that cheaper, better products are about to come out
- ◯ 7. Other (please specify) _____

PRODUCT CATEGORY INFORMATION

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

951 Mail Order Companies
952 Printers
953 Scanner & Digital Cameras
954 Online/Internet
955 Storage Devices
956 Monitors & Graphics Boards
957 Utilities
958 Clip Art & Fonts
959 Memory
960 Draw/Paint/DTP Software
961 Image-Editing Software
962 Other Graphics Software

READER SERVICE NUMBERS FOR ADVERTISED PRODUCTS CAN BE FOUND IN THE PRODUCT'S AD AND IN BOTH THE ADVERTISER INDEX AND PRODUCT INDEX.

1	2	3	4	5	146	147	148	149	150	291	292	293	294	295	461	462	463	464	465	531	532	533	534	535
6	7	8	9	10	151	152	153	154	155	296	297	298	299	300	466	467	468	469	470	536	537	538	539	540
11	12	13	14	15	156	157	158	159	160	401	402	403	404	405	471	472	473	474	475	541	542	543	544	545
16	17	18	19	20	161	162	163	164	165	406	407	408	409	410	476	477	478	479	480	546	547	548	549	550
21	22	23	24	25	166	167	168	169	170	411	412	413	414	415	481	482	483	484	485	551	552	553	554	555
26	27	28	29	30	171	172	173	174	175	416	417	418	419	420	486	487	488	489	490	556	557	558	559	560
31	32	33	34	35	176	177	178	179	180	421	422	423	424	425	491	492	493	494	495	561	562	563	564	565
36	37	38	39	40	181	182	183	184	185	426	427	428	429	430	496	497	498	499	500	566	567	568	569	570
41	42	43	44	45	186	187	188	189	190	431	432	433	434	435	501	502	503	504	505	571	572	573	574	575
46	47	48	49	50	191	192	193	194	195	436	437	438	439	440	506	507	508	509	510	576	577	578	579	580
51	52	53	54	55	196	197	198	199	200	441	442	443	444	445	511	512	513	514	515	581	582	583	584	585
56	57	58	59	60	201	202	203	204	205	446	447	448	449	450	516	517	518	519	520	586	587	588	589	590
61	62	63	64	65	206	207	208	209	210	451	452	453	454	455	521	522	523	524	525	591	592	593	594	595
66	67	68	69	70	211	212	213	214	215	456	457	458	459	460	526	527	528	529	530	596	597	598	599	600
71	72	73	74	75	216	217	218	219	220															
76	77	78	79	80	221	222	223	224	225															
81	82	83	84	85	226	227	228	229	230															
86	87	88	89	90	231	232	233	234	235															
91	92	93	94	95	236	237	238	239	240															
96	97	98	99	100	241	242	243	244	245															
101	102	103	104	105	246	247	248	249	250															
106	107	108	109	110	251	252	253	254	255															
111	112	113	114	115	256	257	258	259	260															
116	117	118	119	120	261	262	263	264	265															
121	122	123	124	125	266	267	268	269	270															
126	127	128	129	130	271	272	273	274	275															
131	132	133	134	135	276	277	278	279	280															
136	137	138	139	140	281	282	283	284	285															
141	142	143	144	145	286	287	288	289	290															

PLEASE PRINT OR TYPE ALL INFORMATION.
Expires Dec. 24, 1997. S2 September 1997

Name _____
E-mail _____
Address _____
City _____
State _____ Zip _____
Title _____
Company _____
Phone _____ Fax _____

S2

TWO SIMPLE WAYS TO GET FREE PRODUCT INFORMATION

Macworld
THE ESSENTIAL RESOURCE

FREE

Macworld puts you in touch with the information you need most with two easy options — fax back or mail in the reader service card.

Fax back. Mail in. Just don't miss out.

Fold here and close with tape. Do not staple.

50% TOTAL RECOVERED FIBER
10% POST-CONSUMER FIBER

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 677 PORTLAND OR
POSTAGE WILL BE PAID BY ADDRESSEE

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9747

NO SMOKE. NO MIRRORS. JUST THE BEST BUY.

Mac OS
PowerPC
MOTOROLA

Monitor sold Separately

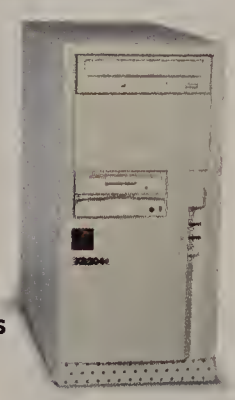
XB233Pro

- 233Mhz PowerPC 604e Processors
- Upgradeable CPU & Dual processor Available
- 32Mb RAM Interleaved memory (1Gb Max)
- 2Gb 7200 RPM AV-Capable HD
- 16X CD-ROM Drive
- 100Mb Iomega ZIP Drive
- 512K L2 Cache
- 8 Mb IMS Twin Turbo Graphics Accelerator
- Dual SCSI Channel (internal/external)
- Built-in Ethernet (AAUI & 10BaseT)
- 6 PCI Expansion Slots
- 8 Drive Bays
- Extended Keyboard and Mouse

Business Lease $126/Mo. **$3495**

XB204T

- Scaleable 200 Mhz 604e processor
- 32Mb RAM (168Mb Max)
- 3.2Gb 5400 RPM AV-Capable HD
- 16X CD-ROM
- 100Mb Iomega Zip Drive
- 512K L2 Cache
- 4Mb SGRAM Video RAM
- 10/100 BaseT Ethernet Interface
- Extended Keyboard and Mouse
- MidTower Enclosure w/8 drive bays



Business Lease $78/Mo. **$2149**

XA183D

- Upgradeable 180Mhz 603e processor
- 16Mb RAM (144Mb Max)
- 1.2 Gb 4500 RPM HD
- 256K L2 Cache
- 8X CD-ROM
- 1Mb VRAM
- Extended Keyboard and Mouse
- Desktop Enclosure w/2x 5.25" bays Δ

Business Lease $42/Mo. **$1149**

Custom Configure Your System Online or Call!

30 Day money back guarantee on standard configurations. 1 Year on-site warranty included with all systems!† Mactell also offers a complete line of third party peripherals.

Major accounts, Educational institutions, and Government agencies purchase orders accepted. Contact Mactell to establish an account. Dealers, Integrators, and Distributors inquiries welcomed. See our website for more information.

WWW.MACTELL.COM 1-888-MACTELL

MW9/97

Mactell Corporation • 7000 Cameron Rd. Austin, Texas 78752 • 888-622-8355 • 512-323-6000 • Fax 512-323-6394

Mactell and Mactell Logo are registered trademarks of Mactell Corporation. The Mac OS and Mac OS Logo are trademarks of Apple Computer, Inc., and are used under license from Apple Computer. Motorola and Motorola logo are registered trademarks of Motorola, Inc. PowerPC is a trademark of IBM Corp. and is used under license. All other trademarks and product names used herein are the property and/or registered property of their respective owners. Mactell is not responsible for typographical and photography errors. Prices, specifications and availability subject to change without notice. Leasing terms and credit approval provided by third party. Monthly lease payment based on 36 month term. † Extended warranty and extended on-site plans available. Call for details. Δ Computer chassis may not match exactly shown.

Circle 75 on reader service card

express direct

Systems and peripherals for the Graphics Professional!

Custom Configured Complete Systems

SuperMac C600/240MHz
Complete Publishing System

Includes:
- SuperMac C600/240MHz 603e with
- 24MB RAM/2.1GB HD/8x CD
- 33.6 Modem/Kbd & Mouse
- 21" Hitachi SuperScan MC21 Monitor
- ATI Xclaim 3D 4MB Graphics Card
- Across 24-bit, 300 x 1200dpi Scanner
- MetaTools SE Suite: KPT, Bryce II, Goo, etc.
- Adobe Full Photoshop 4.0
- Extensis Fetch 1.5

240 MHz

UMAX

only $3999
Lease $138/mo.

Adobe Photoshop 4.0

Super Deals! on Apple CPU's

from $1499

Apple PowerMacs

4400/200Mhz 603e 16/2GB/8X	$1499
6500/250Mhz 603e 32/4GB/12X/Zip/Modem	$2299
7300/200Mhz 604e 32/2GB/12X	$2389
8600/200Mhz 604e 32/2GB/12X/Zip	$2989
9600/233Mhz 604e 32/4GB/12X	$3489

POWERMACS

SuperMac S900/250MHz
- 250MHz 604e/32MB/2.1GB HD/8X CD/Zip

UMAX

$3995 Price Drop!

UMAX SuperMacs

C500LT/180MHz 603e/16MB/1GB HD/8X CD	$ 945
C600/200MHz 603e/16MB/2.1GB HD/8X CD	$ 1495
C600LT/240MHz 603e/24MB/2.1GB HD/8X CD	$ 1695
S900/180MHz 604e/32MB/2.1GB HD/8X/IMS 4MB	$ 2595
S900/200MHz 604e/32MB/2.1GB HD/8X/IMS 4MB	$ 2795
S900/250MHz 604e/32MB/2.1GB HD/8X/Zip	$ 3995

Motorola StarMax

3000/200 MT-6S 603e/32MB/2.5GB/8X	$ 1795
3000/200 MT-6E 603e/32MB/2.5GB/16X	$ 2149
4000/200 MT-6E 604e/32MB/4.3GB/16X	$ 3099

MONITORS

RasterOps SuperScan MC 21
- Ultrafine 0.28 dot pitch
- resolutions up to 1600 x 1200

only $1599

RasterOps/Hitachi

MC 17s	$ 699
MC 611	$ 799
MC 7515 NEW 19"	$ 1199
MC 21 SPECIAL	$ 1599
MC 801HR	$ 2199

Mag/Princeton

DX15T 15" Trinitron	$ 399
DX700T 17" Trinitron	$ 749
EO74T 17" Trinitron	$ 699

Apple

AppleVision 850 20"	CALL
AppleVision 850AV 20"	CALL
Multiscan 20	$ 1649

Portrait Display Labs

Pivot 1700 0.26mm very few left	$ 799

PRINTERS

EPSON Stylus Color 3000
- Handles paper up to 17" x 22"
- 1440 x 720dpi Photo-quality color printing

NEW! only $1999

EPSON

Stylus Color 800	$ 459
Stylus Color 3000	$ 1999

Apple

LaserWriter 4/600	$ 899
LaserWriter 12/640PS	$ 1599

QMS

2060 BX 13 x 19" 600dpi	$ 2999
2060 EX 13 x 19" 1200dpi	$ 5799
MagicColor CX Color Laser	CALL
ColorScript 480 Tabloid Dye-Sub	CALL

HP

LaserJet 6MP	$ 999

DRIVES/STORAGE

LaCie Storage Utilities

LaCie 1GB Jaz
- 1GB cart.
- Dantz Retrospect

only $399

LaCie

1208MB Quantum Int.	$ 269
3.2GB Quantum Int.	$ 399
9.0GB Fujitsu Ext.	$ 1399
1GB Jaz w/cart. & retrospect	$ 399
4x/6x CD-Recorder	$ 799
12x CD-ROM	$ 199

Apple

1.2GB-9GB External Drives	CALL

HAMMER by StreamLogic

Disk Arrays

from only $2359

SCANNERS

Across

MetaScan 3CX
- 24-bit, 300 x 1200dpi, Single pass

only $169

Across

MetaScan 3CX, 24-bit 300dpi	$ 169
MetaScan Pro 36X, 36-bit 1200dpi	$ 749
Full Photoshop 4.0 for MetaScan	$ 249

UMAX

Astra 600S	$ 269
Astra 1200S	$ 499
Astra 1200S Pro w/ Photoshop 4.0	$ 749
PowerLook II Pro	$ 1499

Polaroid

SprintScan 35 ES	$ 1499
LightSource Colortron II	$ 799

CARDS/ACCELERATORS

XLR8

MAChSpeed
- 604e 233MHz CPU Card with MVP

only $1049 133MHz 604e

XLR8

MAChSpeed 604e 180MHz	$ 499
MAChSpeed 604e 200MHz	$ 749
MAChSpeed 604e 225MHz	$ 999
MAChSpeed 604e 233MHz	$ 1049

ATI

Xclaim 3D	$ 199
Xclaim VR	$ 239
Xclaim TV	$ 99

Sonnet Call for prices

SOFTWARE

Extensis

Fetch 1.5
shipped in promotional package

reg $99 only $29

Extensis

Fetch 1.5	$ 29
QXTools 2.0	$ 99.99
PhotoTools 1.0	$ 99.99
CyberPress 2.0	$ 129.99

Quark

QuarkXPress 3.32	$ 659

Connectix

Virtual PC	$ 139

Tons of Xtensions & Plug-ins in stock!

Media 100qx with Component

We specialize in complete custom DV Systems

CALL!

FREE!! FreeHand 7.0 with 12x9" Drawing Tablet
Across ArtPad 912

only $399

express direct Solutions

Call for a FREE Catalog!

800-765-0020

Order Toll Free M-Th 8am-7pm, Fri til 6pm • 24 Hour Fax
• Customer Service Hotline: 1-800-236-3059

Shop our Web site for thousands of products & great deals!

www.expressdirect.com

express direct ONLINE

VISA

express direct

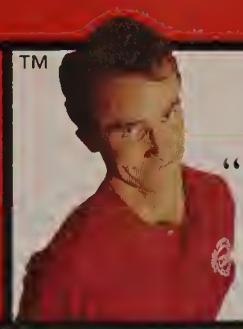
2720 North Paulina Avenue
Chicago • Illinois • 60614

Apple, the Apple logo, Macintosh Macintosh Quadra and Power Macintosh are trademarks of Apple Computer Inc Prices are subject to change without notice Mac pricing based on purchase of CPU with monitor. "Stand Alone" CPUs may be more All returned orders may be subject to a 15% restocking fee plus return shipping Call for RMA before returning Software unless defective, cannot be returned after it has been opened "Lease prices based on 36 month term with 10% purchase option Call for complete details

International ORDERS SHIPPED DAILY PHONE: (773)244-3000 • FAX: (773)244-3081

COMPUTER DISCOUNT WAREHOUSE

The right price.
The right advice.

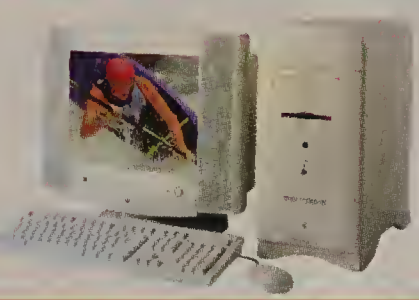


"Call **CDW**® for all of your Apple needs!"

Authorized Catalog Reseller

APPLE® POWER MACINTOSH® COMPUTERS

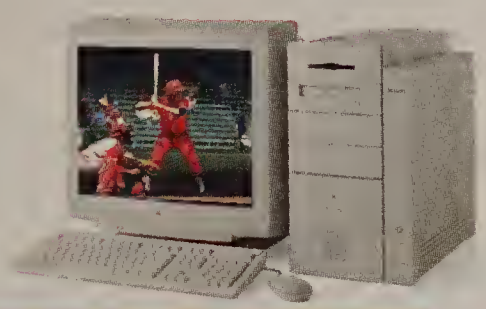
Authorized Catalog Reseller



	Power Macintosh 4400	Power Macintosh 6500	Power Macintosh 7300
CPU	200MHz PowerPC 603e	PowerPC 603e	PowerPC 604e
RAM	16MB or 32MB	32MB, 48MB or 64MB	16MB or 32MB
HARD DRIVE	2GB	3GB or 4GB	2GB
CD-ROM	8X or 12X	12X	12X
Modem	33.6K bps (86930)	33.6K bps	—
	$1499.00 82111	225MHz/3GB **$1999.00** 86928	180MHz **$2099.00** 82106
	Small Business **$1799.00** 86930	250MHz/4GB w/Zip **$2299.00** 86927	200MHz **$2399.00** 82107
		275MHz/4GB **$2999.00** 89617	PC Compatible
		300MHz/4GB w/Zip **$2999.00** 89618	180MHz PowerPC/166MHz Pentium
		Small Business 250MHz/48MB/4GB w/Zip	**CALL!** 89619
		$2599.00 86929	

APPLE® POWER MACINTOSH® COMPUTERS

Authorized Catalog Reseller



	Power Macintosh 8600	Power Macintosh 9600
CPU	200MHz PowerPC 604e	233MHz or 2 x 200MHz PowerPC 604e
RAM	32MB	32MB
HARD DRIVE	2GB	4GB
CD-ROM	12X	12X
Modem	—	—
	$2999.00 82108	233MHz **$3499.00** 86940
		2 x 200MHz **$4199.00** 82110

4-YEAR service plan for

Only $269!

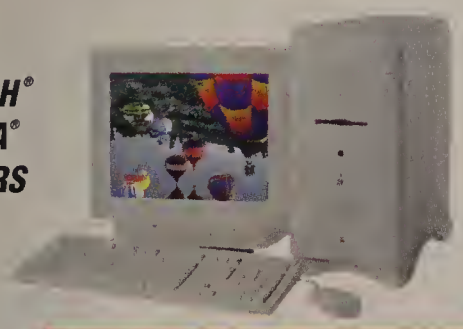
Should you have a computer problem, simply make one TOLL-FREE CALL!

Call your CDW account manager for details!

QUALITY EXPRESS SERVICE AVAILABLE from CDW®

APPLE® MACINTOSH® PERFORMA® COMPUTERS

Authorized Catalog Reseller



APPLE® MACINTOSH® POWERBOOK® COMPUTERS

Authorized Catalog Reseller

	Performa 6400	PowerBook 1400	PowerBook 3400
CPU	180MHz or 200MHz PowerPC 603e	117MHz or 133MHz PowerPC 603e	180MHz, 200MHz or 240MHz PowerPC 603e
RAM	16MB	12MB or 16MB	16MB
HARD DRIVE	1.6GB or 2.4GB	750MB or 1GB	1.3GB, 2GB or 3GB
CD-ROM	8X	Optional or 6X	6X or 12X
MODEM	28.8K bps	—	—
COLOR DISPLAY	—	11.3" dual-scan or active-matrix	12.1" active-matrix
	180MHz **$1349.86** 72726	1400cs/117/12 **$1699.00** 77539	3400c/180 **$4499.00** 90187
	200MHz **$1529.63** 72727	1400c/133 **$3199.00** 77542	3400c/200 **$4529.96** 82114
			3400c/240 **$5999.00** 85220

Monitors shown sold separately

CDW® offers FREE custom configuration of your new computer purchase

800-509-4239

www.cdw.com

©1997 CDW Computer Centers, Inc.

MW3162A 9/97 200 N. Milwaukee Avenue Vernon Hills, IL 60061

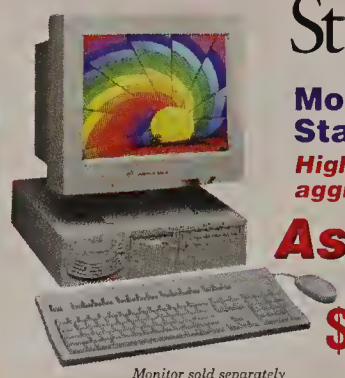
COMPUTER DISCOUNT WAREHOUSE™

The right price.
The right advice.

We offer you

"Get more than just a great price. Call today and get a little empathy, some free advice and a free **CDW®** catalog."

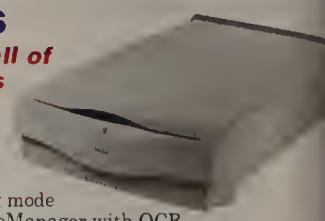
MOTOROLA StarMax™



Motorola StarMax Series
High performance at aggressive prices
As low as!
$1249.00 CDW 86843
Monitor sold separately

UMAX®

Astra 1200S
Put sizzle into all of your documents



- 600 x 1200 dpi optical, 9600 dpi interpolated resolution
- Single pass
- 30-bit color scanning mode
- Newsoft Presto! PageManager with OCR, Adobe Photoshop V4.0 for Macintosh, UMAX Copy Utility and VistaScan software interfaces

$636.47 CDW 88606

HARDWARE, SOFTWARE & PERIPHERALS AT *DISCOUNT* PRICES!

COMPUTERS

Apple® Power Macintosh® Series
4400 200MHz PowerPC 603e 16MB 2GB 8X CD . 1499.00
4400 200MHz PowerPC 32MB 2GB 12X CD . 1799.00
6500 225MHz PowerPC 32MB 3GB 12X CD. 1999.00
6500 250MHz PowerPC 32MB
4GB 12X CD Zip drive 2299.00
6500 250MHz PowerPC 48MB
4GB 12X CD Zip drive 2599.00
6500 275MHz PowerPC 32MB 4GB 12X CD . 2999.00
6500 300MHz PowerPC 64MB
4GB 12X CD Zip drive 2999.00
7300 180MHz PowerPC 604e 16MB
2GB 12X CD 2099.00
7300 200MHz PowerPC 604e 32MB
2GB 12X CD 2399.00
7300 PC compatible 180MHz PowerPC
604e/166MHz Intel Pentium processor. . CALL!
8600 200MHz PowerPC 604e 32MB
2GB 12X CD Zip drive 2999.00
9600 2x200MHz PowerPC 604e 32MB
4GB 12X CD 4199.00
9600 233MHz PowerPC 604e 32MB
4GB 12X CD 3499.00
Apple® Macintosh® Performa® Series
6400 180MHz PowerPC 603e 16MB
1.6GB 8X CD 1349.86
6400 200MHz PowerPC 603e 16MB
2.4GB 8X CD 1529.63
6400 200MHz PowerPC 603e 32MB
2.4GB 8X CD 1989.57
Apple® Macintosh® PowerBook® Series
1400cs 117MHz PowerPC 603e 12MB
750MB 11.3" dual 1699.00
1400cs 117MHz PowerPC 603e 16MB
750MB 11.3" dual 6X CD 1999.00
1400c 133MHz PowerPC 603e 16MB
1.2GB 11.3" active 6X CD 3199.00
3400c 180MHz PowerPC 603e 16MB
1.3GB 12.1" active 3589.80
3400c 180MHz PowerPC 603e 16MB
1.3GB 12.1" active 6X CD 3999.89
3400c 200MHz PowerPC 603e 16MB
2GB 12.1" active 6X CD 4499.96
3400c 240MHz PowerPC 603e 16MB
3GB 12.1" active 12X CD 5999.00

MOTOROLA
StarMax Series Desktops
3000/180MHz PowerPC 603e 16MB
1.2GB 8X CD 1249.00
3000/200MHz PowerPC 603e 16MB
1.2GB 8X CD 1495.00
StarMax Series Mini-towers
3000/180MHz PowerPC 603e 32MB
2.5GB 8X CD 1395.00
3000/200MHz PowerPC 603e 32MB
2.5GB 8X CD 1795.00
3000/200MHz PowerPC 603e 32MB
2.5GB 16X CD 2149.00
3000/240MHz PowerPC 603e 32MB
2.5GB 8X CD 2250.00
3000/240MHz PowerPC 603e 32MB
2.5GB 16X CD 2549.00
4000/160MHz PowerPC 604e 32MB
2.5GB 8X CD 1895.00
4000/200MHz PowerPC 604e 32MB
2.5GB 8X CD 2895.00

UMAX
SuperMac Series Desktops
C500LT 180MHz PowerPC 603e 16MB
1.2GB 8X CD 945.00
C500i 180MHz PowerPC 603e 16MB
1.2GB 8X CD 1095.00
J700 180MHz PowerPC 604e 24MB
2.1GB 8X CD 1995.00
SuperMac Series Mini-towers
C600 180MHz PowerPC 603e 16MB
1.2GB 8X CD 1195.00
C600 200MHz PowerPC 603e 16MB
2.1GB 8X CD 1495.00
C600 240MHz PowerPC 603e 24MB
2.1GB 8X CD 1695.00
S900L 180MHz PowerPC 604e 32MB
2.1GB 8X CD 2695.00

COMPUTERS

UMAX
S900L 2x180MHz PowerPC 604e 32MB
2.1GB 8X CD 3295.00
S900L 200MHz PowerPC 604e 32MB
2.1GB 8X CD 2995.00
S900L 2x200MHz PowerPC 604e 32MB
2.1GB 8X CD 3995.00
S900L 225MHz PowerPC 604e 32MB
2.1GB 8X CD 3495.00
S900L 233MHz PowerPC 604e 32MB
2.1GB 8X CD 3695.00
S900L 250MHz PowerPC 604e 32MB
2.1GB 8X CD, internal Iomega Zip drive . . 4899.00
S900L 2x250MHz PowerPC 604e 64MB
4GB 8X CD, internal Iomega Zip drive . 6995.00

PDAs

MessagePad 2000 . . . . . 949.00
MessagePad 2000 w/keyboard & case. 1099.00

MONITORS

MultipleScan 15AV 15" 0.28mm 445.37
MultipleScan 1705 17" 0.28mm 629.50
AppleVision 1710 17" 0.26mm 779.12
AppleVision 850 20" 0.26mm 1849.00

MAG
DX700T 17" 0.25mm 659.80
DJ702E 17" 0.28mm 567.90
DJ920 21" 0.28mm 1507.01

MAGNAVOX
MB5314 15" 0.28mm 339.37
MB7000 17" 0.28mm 539.92

NEC
XV17+ 17" 0.25mm 664.04
P750 17" 0.25mm 849.57
E1100 21" 0.28mm 1379.98

SONY
100sx 15" 0.25mm 349.38
100sf 15" 0.25mm 397.07
200sx 17" 0.25mm 656.90
200sf 17" 0.25mm 775.83
17se2t 17" 0.25mm 859.52
300sf2t 20" 0.30mm 1565.46
GDM-W900 24" 0.25mm. 4239.99

ViewSonic®
E641 14" 0.28mm 209.35
E655 15" 0.28mm 294.93
17GS 17" 0.27mm 576.35
17GA 17" 0.27mm 609.74
GT770 17" 0.25mm 647.27
PT770 17" 0.25mm 699.17
PT775 17" 0.25mm 779.42
GT800 20" 0.30mm 1145.90
G810 21" 0.25mm 1284.20
P810 21" 0.25mm 1384.62
PT813 21" 0.28mm 1486.16

COMMUNICATIONS

TelePort 56K 56Flex external 207.57
TelePort 56K x2 external 207.57
TelePort Internet Edition 33.6 . . . . . 147.37
TelePort Speakerphone Edition 33.6 . . . 246.42

Hayes
ACCURA 336 external 137.61
OPTIMA 336 external 244.85
ACCURA 56K external 169.97

MOTOROLA
Montana 33.6 PC Card 184.97
BitSURFR Pro ISDN 346.06

COMMUNICATIONS

PRACTICAL PERIPHERALS
MacClass 336 V.34 MiniTower II 109.73
MacClass 33.6 PC Card 156.72

U.S. Robotics
Megahertz 28.8 cell-capable CruiseCard . . . 229.00
Megahertz 33.6 Ethernet 10BT
PC Card w/RJ11 . . . . . 299.10
Megahertz AllPoints wireless PC Card . . 464.12
Sportster 28.8 PC Card w/DataView. . . . 189.12
Sportster 33.6 external 159.90
Sportster Voice 33.6 external 95.78
Sportster 56K x2 faxmodem external . . . 217.99
Courier V.Everything 33.6 external. 239.57
Courier I-modem. 339.86

DATA STORAGE

VAL
Hi-Val 8X4 CD-changer external. 229.49
Hi-Val 8X4 CD-changer w/software external. . 249.30
Hi-Val SounTastic 12X CD external 209.11
Hi-Val SounTastic 12X CD Kit w/software . . 224.87
Hi-Val SounTastic 16X CD external 225.39
Hi-Val SounTastic 16X CD Kit w/software . . . 247.80

iomega
Zip drive 100MB SCSI external. 149.95
100MB Zip disk 19.95
100MB Zip disk 3-pack 49.95
Jaz Drive 1GB SCSI-2 external 399.95
1GB Jaz disk. 124.95
1GB Jaz disk 3-pack 299.95
Jaz Jet PCI SCSI interface for Power Mac. . 99.95

LACIE
Fireball TM 1.2GB Ultra SCSI-3 internal. . 269.00
Fireball TM 1.2GB Ultra SCSI-3 external . . 349.00
Fireball TM 2.1GB Ultra SCSI-3 external. . 429.00
Atlas II 4.3GB Wide Ultra SCSI-3 internal . . 899.00
Atlas II 4.3GB Wide Ultra SCSI-3 external. . 999.00
8X CD-ROM drive external 199.00
8X 4-CD changer external 299.00

Quantum
Fireball 2.1GB Ultra SCSI-3 . . . . . 275.77
Fireball 3.2GB Ultra SCSI-3 . . . . . 339.18
Atlas II 4.5GB Ultra SCSI-3. . . . . 759.43

SyQuest
EZFlyer 230MB external 199.00
EZFlyer 230MB cartridge 29.32
SyJet 1.5GB SCSI internal 399.00
SyJet 1.5GB SCSI external. 499.00
SyJet 1.5GB cartridge. 107.77

INPUT DEVICES

AGFA
ePhoto 307 digital camera 299.47
SnapScan flatbed scanner 294.18
StudioScan IIsi flatbed scanner 477.20
StudioStar flatbed scanner 799.24
Arcus II flatbed scanner 1995.00

ALPS
Portable GlidePoint. 41.26
Desktop GlidePoint 69.84
GlidePoint Keypad 109.30
GlidePoint Keyboard. 107.83

ADESSO
PowerMouse. 19.33
Soft Touch Plus extended keyboard. 47.05
NU-Form extended keyboard 49.47
NU-Form extended keyboard w/touchpad 74.52
Tru-Form extended keyboard 67.11
Tru-Form extended keyboard w/pointer . . 71.81
Tru-Form Touch Pad. 85.93

Connectix
QuickCam digital video camera 97.94
Color QuickCam digital video camera. . . 189.16

INPUT DEVICES

EPSON®
PhotoPC digital camera 349.00
PhotoPC 500 digital camera 499.00
Action Scanning System II 269.82
ES-1000C color flatbed scanner. 478.81
Expression 636 Executive scanner. 799.00
Expression 636 Artist scanner 999.00
Expression 636 Professional scanner. . 1399.00

HEWLETT® PACKARD
HP ScanJet 4c flatbed scanner. 429.34

Kodak digital science
DC20 digital camera 199.00
DC25 digital camera 299.00
DC50 digital camera w/Zoom lens 699.00
DC120 digital camera w/Zoom lens 999.00

MICROTEK
ScanMaker E3 . . . . . 189.57
ScanMaker E6 Standard. 329.22
ScanMaker E6 Professional 517.52
ScanMaker 35t Plus 729.22

Nikon
Coolpix 100 digital camera 396.02
AX-110 Scantouch flatbed scanner 269.12
AX-210 ScanTouch flatbed scanner. . . . 584.10
LS-20 Super CoolScan II 1146.54
Super CoolScan film scanner 1739.39

Polaroid
PDC 2000/40 digital camera 2877.79
SprintScan 35LE film scanner. 779.41
SprintScan 35ES film scanner 1444.53
SprintScan 35+ film scanner. 1774.59

UMAX
Astra 600S flatbed scanner. 235.35
Astra 1200S flatbed scanner. 636.47
Vista-S12 with PhotoDeluxe 438.02
Vista-S12 with Photoshop LE 498.91
Vista-S12 with full Photoshop 629.61
PowerLook II. 1395.00

VISIONEER
PaperPort vx. 188.94

PRINTERS

LaserWriter 4/600 PS 817.44
LaserWriter 16/600 PS 2298.00
Color LaserWriter 12/660 PS 5844.23
LaserWriter 12/640 PS 1546.44
Color StyleWriter 4100 . . . . . 229.29
Color StyleWriter 4500 . . . . . 329.05
Color StyleWriter 6500 . . . . . 457.90

EPSON®
Stylus Color 600 . . . . . 299.00
Stylus Color 800 . . . . . 449.00
Stylus Color 1520 . . . . . 799.00
Stylus Color 3000 . . . . . 1999.00
Stylus Photo 499.00

HEWLETT® PACKARD
HP DeskJet 340 portable ink jet printer . 269.37
HP DeskJet 1600CM printer 1956.72
HP LaserJet 5se printer 1049.00

UPS SYSTEMS

APC
PowerChute software for Novell
NetWare 57.93
Back-UPS Office 199.95
Back-UPS 200 . . . . . 87.88
Back-UPS 400 . . . . . 139.84
Back-UPS 600 . . . . . 237.76
Smart-UPS 450NET 299.41
Smart-UPS 700NET 374.87
Smart-UPS 1000NET 514.94
Smart-UPS 1400NET 648.24
SurgeArrest P7 Home. 8.11
SurgeArrest Personal 16.25
SurgeArrest Pro 26.09
SurgeArrest Network. 29.45

800-509-4239
www.cdw.com

Visit CDW® on the Internet to sign up for Buyer's Edge unadvertised specials!

©1997 CDW Computer Centers, Inc.
200 N. Milwaukee Avenue, Vernon Hills, IL 60061
MW3162D 9/97

a rare sales tool.
it's called objectivity.

U.S. Robotics Sportster 56K Faxmodem

$50 rebate!

■ **Includes:** Sportster 56K faxmodem, RJ-11 phone cord, AC adapter, cable, U.S. Robotics Connections™ CD-ROM with fax and communication software, Internet access software and more than thirty software programs and special offers

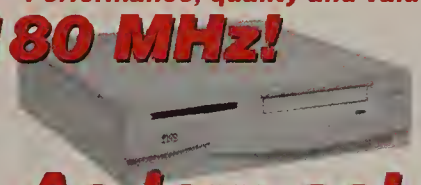
$167.99*
CDW 81425

*After $50 mail-in manufacturer rebate valid through 10/4/97. Internet connectivity requires access services from an Internet access provider. Contact your local access provider(s) for rates, terms and conditions.

UMAX Computer Corporation SuperMac C500LT

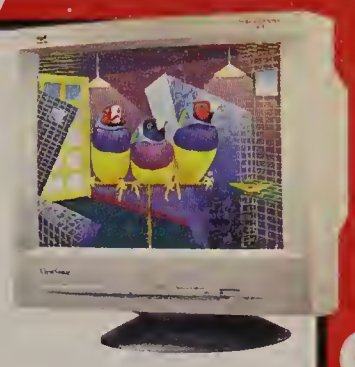
Performance, quality and value

180 MHz!



As low as!
$945.00 CDW 89625

ViewSonic P815 Professional Series 21" monitor



■ 21" flat square CRT (20" viewable image size)
■ 0.25mm dot pitch
■ Maximum resolution: 1600 x 1200 at 91Hz
■ 3-year limited warranty

$1539.04 CDW 72016

CDW® CARRIES MORE THAN 20,000 PRODUCTS! IF YOU DON'T SEE IT, CALL!

SOFTWARE

Adobe

Acrobat V3.0 CD	179.41
After Effects V3.1 CD	606.15
Illustrator V7.0 CD	359.18
Illustrator V7.0 competitive upg CD	129.80
Illustrator V7.0 version upg CD	89.96
PageMaker V6.5 CD	545.78
PageMaker V6.5 competitive upg CD	114.98
PageMaker V6.5 version upg CD	89.96
PageMill V2.0 CD	93.07
PageMill V2.0 version upg CD	46.89
Persuasion V4.0 CD	239.35
Persuasion V4.0 upg CD	114.98
PhotoDeluxe CD	49.34
Photoshop V4.0 CD	545.78
Photoshop V4.0 version upg CD	129.80
Premiere V4.2 CD	486.10
Premiere V4.2 upg CD	129.80
Streamline V3.1	119.93
Type Manager Deluxe V4.0 CD	47.81
Type Reunion Deluxe V2.0	32.38

Apple

Apple At Ease V3.0	29.42
Apple Internet Connection Kit V1.1 CD	43.07
Apple Mac OS 7.6 w/Internet Connection Kit CD	95.67
Apple Remote Access Client V2.1	49.36
Apple Remote Access Personal Server V2.1	91.43

CAERE

OmniForm V2.0	129.37
OmniPage Direct V2.0	57.70
OmniPage Pro V7.0 CD	469.26
OmniPage Pro V7.0 upg CD	114.36

HOT BUY
NEATO TDK
Neato CD Labeler and TDK 5-pack 650MB CDR74 Media
$71.34* CDW 76962

C&G

Conflict Catcher V4.0	59.07

CLARIS

ClarisDraw V1.0	179.59
ClarisImpact V2.0	79.08
ClarisWorks V4.0 CPU bundle	63.61
ClarisWorks V4.0 version/competitive upg	62.47
ClarisWorks V4.0 w/Internet	115.08
Emailer V2.0	44.45
FileMaker Pro V3.0	176.08
FileMaker Pro V3.0 server	887.37
FileMaker Pro V3.0 server upg	274.83
FileMaker Pro V3.0 upg	89.75
Home Office	26.62
Home Page V1.0	73.83
Home Page V2.0 CD	87.08
OfficeMail V1.0	255.51
Organizer V2.0	63.26

Connectix

QuickCards V1.1 CD	31.77
RAM Doubler 2	55.68
Speed Doubler 2	55.80
VideoPhone V2.0 (software only)	56.57

COREL

Corel Gallery V1.0 CD	19.59
Corel Gallery V2.0 CD	36.18
Corel Mega Gallery CD	62.15
Corel Print House CD	29.03
Corel Stock Photo Library 1 CD	859.21
Corel Stock Photo Library 2 CD	867.22
Corel Stock Photo Library 3 CD	879.07
Corel Super Ten Animals CD	37.77
Corel Super Ten Great Works of Art CD	37.32
Corel Super Ten People CD	37.69

SOFTWARE

COREL

Corel Super Ten Select Photos CD	37.13
Corel WEB.GALLERY CD	62.48
Corel WordPerfect V3.5 CD	149.11
Corel WordPerfect V3.5 upg CD	79.30
CorelDRAW 6 Suite CD	359.18
CorelDRAW 6 Suite upg CD	134.36

DENEBA

Art Works 3.5/CD	48.84
Canvas V5.0 3.5 + CD	379.83
Canvas V5.0 competitive upg	138.15
Ultra Paint Home V1.0	16.90

EQUILIBRIUM

DeBabelizer Lite V1.1	64.06
DeBabelizer Toolbox V1.6	229.06
DeBabelizer Toolbox V1.6 5-user	919.55

Extensis

Cyberpress V1.0	129.37
Fetch V1.5	89.01
Intellihance V3.0 CD	89.87
MaskPro V1.0 CD	267.72
Page Tools V2.0	89.79
PhotoTools V1.1 CD	89.00
QX-Tools V2.0 CD	88.13
VectorTools V2.0 CD	89.73

MetaCreations

Bryce 2 Accessory Kit CD	47.95
Bryce 2 CD	179.00
Dabbler V2.0 CD	42.40
Detailer CD	274.33
Expression CD	126.46
Kai's Photo Soap CD	43.65
Kai's Power Goo CD	49.95
Kai's Power Tools 3 CD	129.00
KPT Actions Accessory Kit CD	43.65
Painter V5.0 CD	259.06
Painter V5.0 upg CD	89.35
Poser V2.0 CD	119.02
Poser V2.0 upg CD	62.28
Ray Dream Designer V4.1	89.45
Ray Dream Studio V4.1 CD	268.50

FWB

CD-ROM ToolKit V2.0	49.93
Hard Disk ToolKit V2.01	49.36

GRAPH

Soft Blueprint V5.0	189.31
Soft MiniCAD V6.0	514.73

HOT BUY
NEC
XV15+ 15" color monitor
$349.04* CDW 82294

INSIGNIA SOLUTIONS

MacTransfer for Windows 95 PCs	45.09
SoftWindows 95 V4.0 CD	319.13
SoftWindows for Performa	114.76
SoftWindows V3.0 CD	285.50
SoftWindows V3.0 CD w/computer purchase	179.47

Intuit

MacInTax 1996	41.86
MacInTax Deluxe 1996 CD	49.90
QuickBooks Pro V4.0	179.42
QuickBooks V4.0	109.91
Quicken Deluxe V7.0 CD	59.07
Quicken V7.0	41.50

SOFTWARE

macromedia

Authorware Interactive Studio	1919.45
Director 6 upg CD	379.88
Director Multimedia Studio 2 CD	889.46
Director Multimedia Studio 2 upg CD	458.13
Director Multimedia Studio 6 CD	929.20
Director Multimedia Studio 6 upg CD	478.48
Extreme 3D CD	439.49
Extreme 3D competitive upg CD	179.69
Flash 2 CD	184.59
Fontographer V4.1 CD	309.82
FreeHand 7 CD	377.99
FreeHand 7 competitive upg CD	137.81
FreeHand 7 upg CD	138.08
FreeHand Graphics Studio 7 CD	399.84
FreeHand Graphics Studio 7 competitive upg CD	179.64
FreeHand Graphics Studio 7 upg CD	179.47
Home Page/Sound Edit bundle CD	147.07
SoundEdit 16 V2.0 CD	259.45
SoundEdit 16 V2.0 plus DECK II CD	339.38

METROWERKS

CodeManager 3	319.28
CodeWarrior Gold 11 CD	319.43
Discover Programming for Macintosh V2.0	63.32
Discover Programming with Java V2.0	65.53

HOT BUY
HEWLETT® PACKARD
HP LaserJet 6MP printer
$859.55* CDW 74908

Microsoft

Arcade V1.0	29.30
Cinemania 97 CD	29.58
Encarta Deluxe 97 CD	67.24
Excel V5.0	296.91
Excel V5.0 upg	115.58
Flight Simulator V4.0	41.93
FrontPage V1.0 CD	129.38
Office V4.2.1 Small Business CD	448.87
Office V4.2.1 Small Business upg CD	269.04
PowerPoint V4.0	295.44
PowerPoint V4.0 upg	114.98
Project V4.0	419.73
Project V4.0 upg	135.37
Visual FoxPro V3.0 CD	439.61
Visual FoxPro V3.0 upg CD	265.72
Word V6.0.1	296.91
Word V6.0.1 version upg	114.97
Works V4.0	45.46

Now Software

Startup Manager V7.0	47.66
Up-to-Date Web Publisher V1.0 CD	114.53
Utilities V6.5 CD	76.10

ProFit

Select Phone Deluxe 97 CD	62.47
Select Phone 97 CD	44.74

QUALCOMM

Eudora Pro V3.0	55.63
Eudora Pro V3.0 5-user	209.23
Eudora Pro V3.0 upg	34.94

QUARK

QuarkImmedia V1.0 CD	669.64
QuarkXPress V3.32 CD	659.05

SPECULAR

3D Web Workshop	128.51
Inlini-D Studio V3.5	489.05
Inlini-D V3.5 CD	369.70

SOFTWARE

STRATA

Media Paint V1.1	399.97
Studio Pro V1.75	849.37
Vision 3D V4.0	59.18

HOT BUY
APC AMERICAN POWER CONVERSION
Back-UPS 280
$87.41* CDW 44559

SYMANTEC.

ACT! V1.0 for Newton	89.21
ACT! V2.5	145.95
ACT! V2.5 upg	47.79
ACT! V2.8	147.41
Norton Disklock V4.0	71.92
Norton Utilities V3.2	91.32
Norton Utilities V3.2 upg	38.23
Norton Utilities V3.5 CD	93.03
SAM AntiVirus V4.5	63.93
Suitcase V3.0	63.93
Symantec Cafe	64.88

PowerPC and the PowerPC logo are trademarks of International Business Machines Corporation and under license therefrom.

Apple®, the Apple logo, Power Macintosh®, Macintosh® Performa® and Macintosh® PowerBook® are trademarks of Apple Computer, Inc., registered in the U.S.A. and other countries.

* Offer valid through 8/31/97 or while supplies last.

CDW® DIRECTORY

PC sales	800-650-4239
Mac sales	800-509-4239
Corporate sales	800-280-4239
Corporate software sales	800-294-4239
Government and Education sales	800-615-4239

CDW® TELEPHONE HOURS

Sales
Monday-Friday 7 a.m.-9 p.m. CT
Saturday 9 a.m.-5 p.m. CT
Tech Support for Customers
Monday-Friday 9 a.m-9 p.m. CT
Saturday 9 a.m.-5 p.m. CT

BUY WITH CONFIDENCE
CDW® IS A NASDAQ TRADED COMPANY
TICKER SYMBOL CDWC D & B rated SA1 Duns 10-762-7952

Credit card charges are not submitted until time of shipment. For your protection, we ship only to your credit card's verified billing address. Freight is calculated as the carrier's actual freight charge plus insurance and packaging material. The cost of insurance is 0.35% (0.0035) of the order total. Packaging materials will not exceed $4.00 for single package shipments or $6.00 for multi-package shipments. Before returning any product, you must obtain an RMA number. Non-defective returns are subject to a restocking fee. Software, chips and other electronic components are not returnable. Allow 10 business days for shipping when paying by personal check. All pricing subject to change. For all prices, products and offers, CDW reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes, errors in advertisements or other extenuating circumstances. All trademarks and registered trademarks are the sole property of their respective owners.

COMPUTER DISCOUNT WAREHOUSE™

©1997 CDW Computer Centers, Inc.
200 N. Milwaukee Avenue, Vernon Hills, IL 60061
MU3159R 9-97

CDW® is an Apple Authorized Catalog Reseller – call us for all of your Apple needs!

800-509-4239
www.cdw.com

Circle 2 on reader service card

MAC BARGAIN$®

DISCOUNT PRICE$ ON QUALITY HARDWARE, $OFTWARE & ACCE$$ORIE$

Buy with Confidence Online from MAC BARGAIN$.

- NEW! To place an order, e-mail mac.bargains@mzi.com
- NEW! For detailed product information, e-mail mac.bargains.info@mzi.com
- Over 2500 products in stock

Apple® Computers

- PowerPC™ 603e and 604e processors
- Spacious 2.1GB or 1.2GB hard drive

As Low As $799

Authorized Catalog Reseller

Apple Computer

Apple Model	Item #	Price
Performa 6400/180	#85441	$1249
Performa 6400/200	#85442	$1399
PowerBook 1400cs 117	#81505	$1699
PowerBook 3400c 180	#80894	$3689
PowerMac 6500/300	#78200	$2999
WorkGroup Server 6150	#81518	$799

And more! Call today! While supplies last.

UMAX SuperMac Computers

- Upgradable PowerPC™ 603e and 604e processors running at up to 250MHz
- Spacious 2.1GB or 1.2GB hard drive

As Low As $895

SUPERmac

UMAX

UMAX Model	Item #	Price
SuperMac C500/140	#78223	$895
SuperMac C500/180	#78232	$945
SuperMac S900/200	#90935	$2995
SuperMac S900/200DP	#78176	$3995

Ask your Sales Advisor about the complete SuperMac line.

PowerComputing

PowerTower, PowerCenter and PowerBase Computers

- PowerPC™ 603e and 604e processors
- Up to a spacious 2GB hard drive

As Low As $1299

PowerComputing

PowerComputing Model	Item #	Price
PowerTower Pro 200 Core	#81546	$2695
PowerCenter Pro 180	#81547	$2095
PowerBase 200MT	#78233	$2495
PowerCenter 150 BLOWOUT!	#86634	$1299

And more! Call today! While supplies last.

StarMax™ Computers

MOTOROLA

As Low As $1249

- Upgradable 240, 200, 180 or 160MHz PowerPC™ 603e or 604e processor
- 16 or 32MB RAM, expandable to 144MB

Motorola

Motorola Model	Item #	Price
StarMax 3000/180	#80868	$1249
StarMax 3000/240	#78188	$2250
StarMax 4000/200	#78191	$2895

Call us now to find out more about the full line of StarMax Computers!

Software

Activision

84360 Mech Warrior 2 ..... $43.82

Adobe

93952 Adobe Acrobat 3.0 ..... $184.49
88827 Adobe After Effects 3.0 CO $648.89
88205 Adobe Illustrator 7.0 Upgrade CD $89.99
83069 Adobe PageMaker 6.5 CD and 3.5" $548.89
37611 Adobe PageMaker 6.5 for Win95 Comp Upgrade $184.98
83068 Adobe PageMaker 6.5 Upgrade $89.99
88414 Adobe PageMill 2.01 ..... $98.89
83932 Adobe PageMill 2.01 Upgrade $48.89
81740 Adobe Persuasion 4.0 Upgrade $118.89
83083 Adobe Photoshop 4.0 ..... $548.89
83084 Adobe Photoshop 4.0 Upgrade $164.98
04670 Adobe Premiere 4.2 CD $488.89
03971 Adobe Streamline 4.0 ..... $124.49

AEC Software

03456 Fast Track Schedule 4.0 PowerMac or Mac $166.44

Aladdin

85624 CyberFinder $16.85
05827 StuffIt Deluxe 4.0 ..... $65.71
81689 StuffIt Deluxe 4.0/ RAM Doubler 2 Bundle $79.99

Alien Skin

81008 Eye Candy $111.24

Berkeley Systems

83662 AfterDark 4.0 ..... $27.45
83667 You Don't Know Jack Sports $27.45

Bestware

99042 MYOB Accounting w/Payroll 7.0 ..... $120.52

Caere

91304 OmniPage Pro 7.0 Upgrade $115.73

Casady and Greene

85263 Spell Catcher $48.89

Claris

86444 Claris Organizer 2.0 ..... $62.80
92638 ClarisWorks 4.0 Comp/ Version Upgrade $62.02
88830 FileMaker Pro 3.0 ..... $179.99
88829 FileMaker Pro 3.0 Comp/ Version Upgrade CD/3.5" $90.10

Connectix

84048 Connectix RAM Doubler 2 ..... $53.16
90375 Connectix Speed Doubler for Mac 2.0 ..... $54.49

Corel

91628 Corel GALLERY 2 for Mac $34.16
92234 Corel Stock Photo Library 1 ..... $869.99
84052 CorelDraw 6 Suite Comp/ Version Upgrade $138.76
03972 WordPerfect 3.5 Full Version CD-ROM $157.74
83933 WordPerfect 3.5.1 Comp/ Version Upgrade CD-ROM $80.79

Dantz

02586 Dantz Retrospect 3.0 ..... $136.65
04194 Dantz Retrospect w/10-User Remote $246.44

Dataviz

96908 MacLink Plus/Translator Pro 8.0 ..... $87.01
96908 MacLink Plus/Translator Pro 9.0 ..... $87.01

Datawatch

02077 Virex 5.7 for Mac $64.49

Davidson & Associates

82303 WarCraft: Battle Chest $49.98

DeLarme

96777 Street Atlas USA 3.0 ..... $37.81

Epson

82860 Epson PostScript Level 2 SW for Stylus Pro $189.89
83649 Epson PostScript Level 2 SW for Stylus XL $238.20

Equilibrium

98360 DeBabelizer Toolbox 1.6 ..... $233.01

Extensis

77416 PhotoTools 1.1 ..... $88.76
91343 QXTools 2.0 ..... $88.76

Farallon

96801 Farallon Timbuktu Pro for Mac 2.0 2-Pack $166.38
96800 Farallon Timbuktu Pro for Mac 2.0 ..... $127.83

FWB Software

06271 CD-ROM Toolkit 2.0 ..... $46.72
00555 Hard Disk Toolkit 2.0 ..... $116.80
05476 Hard Disk Toolkit Personal Ed 2.0 ..... $46.72

GDT SoftWorks

00642 PowerPrint 3.0 ..... $90.64
82867 StyleScript 3.0 ..... $90.64

GraphSoft

97781 MiniCad 6.0 ..... $520.04

Insignia

87440 SoftWindows 95 v4.0 ..... $349.99
80576 SoftWindows 95 v4.0 Upgrade for v1.0 ..... $88.76
87442 SoftWindows 95 v4.0 Upgrade for v3.0 ..... $149.99
91088 SoftWindows for Performa $115.63

Intuit

93222 Quickbooks 4.0 for Mac $112.79
89653 Quickbooks Pro 4.0 for Mac $182.92
04230 Quicken 7 for Mac $39.99
89685 Quicken Deluxe 7 for Mac $58.40

Jump Development

92896 RAM Charger 3.0 ..... $29.20

Leister Productions

05984 Reunion 4.0 The Family Tree Software $88.76

Macromedia

92266 Director Multimedia Studio 6 ..... $988.89
86007 Director Multimedia Studio 6 Upgrade $489.98
82501 FreeHand 7 ..... $388.89
84212 FreeHand 7 Comp Upgrade $148.89
84242 FreeHand 7 Version Upgrade $148.89
92290 FreeHand Graphic Studio 7 ..... $488.98

MetaCreations

81843 Bryce 2.0 ..... $158.84
84479 Kai's Power Goo $48.89
06668 Kai's Power Tools 3.0 ..... $124.49
37624 Dabbler 2.0 CO $44.49
93967 Painter 5 Upgrade for Mac $98.89
91289 Poser $124.49

Micromat

87067 TechTool Pro $84.27

Microsoft

37803 Cinemania 97 for Mac CO $29.98
95750 Encarta 97 Mac CO $69.98
04545 Excel 5.0 Version Upgrade for Mac $118.89
04293 Flight Simulator 4.0 Mac $44.49
83316 Office 4.21 Upgrade w/Essential Tools $274.49
00596 Word 6.0.1 Version Upgrade for Mac $118.89

05750 Works 4.0 for Mac ..... $

Now Software

80599 Now Synchronize 1.0 for Palm Pilot ..... $
04191 Now Utilities 6.7 ..... $

ParSoft

88389 A-10 Attack CD-ROM ..... $

Qualcomm

85325 Eudora Pro 3.1 Upgrade ..... $

Quark

95320 QuarkXPress 3.32 Native PowerPC $6
78287 QuarkXpress/Immedia/Auria $7
78277 QuarkXpress/Immedia/ Strata/Auria $9

Symantec

06231 ACT! 2.5 for Mac $1
93976 Norton Utilities 3.2 Upgrade ..... $
04890 Norton Utilities 3.5 ..... $
81746 SAM 4.5 Upgrade ..... $
80142 Suitcase 3.0 Upgrade ..... $

Monitors

Hitachi

91096 RasterOps SuperScan MC 20" Monitor $11
78921 RasterOps SuperScan MC 801 21" Monitor $15

NEC

27642 NEC MultiSync C400 14" Monitor $2
80669 NEC MultiSync E1100 21" Monitor $16
86793 NEC MultiSync M700 Color 17" Monitor $7

Sony

82687 Sony Multiscan 100sf 15" Monitor $4
82686 Sony Multiscan 100sx 15" Monitor $3
06687 Sony Multiscan 200sf 17" Monitor $7
06689 Sony Multiscan 200sx 17" Monitor $6
82688 Sony Multiscan 300sf 20" Monitor $1

ViewSonic

87259 ViewSonic 17EA 17" Multimedia Monitor $6
88429 ViewSonic 17GA 17" Monitor $6
23486 ViewSonic 17GS 17" Monitor $5
82695 ViewSonic G800 20" Monitor ..... $
29932 ViewSonic PT770 17" Monitor $7

Video Cards

Connectix

85317 Connectix Color QuickCam for Mac ..... $
92884 Connectix QuickCam for Mac ..... $

Radius

84143 Radius Thunder 30 Video Card $278

Call MAC BARGAIN$ before you buy!

1-800-619-9091

Add applicable sales tax (only in OH, NV and WA). Orders placed before 11 p.m. ET for items in stock will be shipped the same day (barring system failure, etc.). Shipping options include Ground, 2nd Day and Overnight delivery. Freight is based on average product weight. Handling extra. Insurance available. Credit cards are not charged until the order is shipped. Not responsible for typographical errors. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand

For the Best Deals Around!

1-800-619-9091

DISCOUNT PRICES ON QUALITY HARDWARE, SOFTWARE & ACCESSORIES

) Radius Video Vision Studio PCI..$3573.22

celerators

Adoptec

1 PowerDomain 2940UW Kit SCSI-2 PCI $299.98

FWB

1 FWB SCSI JackHammer $435.43

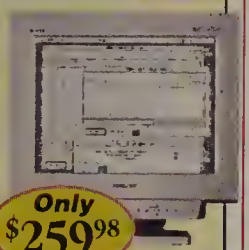
bems

Boco

5 FastMac V.34 33.6 FaxModem After $20 Rebate $74.98

Global Villoge

PowerPort Platinum Pro V.34/ 10-T PC Card..... $329.27



SONY.
ultiScan
SX
nitor
conditioned)
.1" viewable
24x768
ax. resolution
Hz refresh rate
mm aperture grille
y #43948

Only $259.98

PowerPort Platinum V.34 PC Card $206.67

TelePort Internet Edition 33.6 Fax/Modem After $50 Mfr. Mail-in Rebate..... $98.98

Megohertz

CruiseCard Cellular Ready XJack 33.6 Mac..... $229.99

Sportster 28.8 PC Card for PB... $186.36

Supro

Supra FAXModem V.34 33.6 External Mac $159.98

SupraExpress 33.6e External..... $89.98

U.S. Robotics

Mac and Fax Sportster 28.8 V.34 After $40 Mfr. Rebate $119.98

Mac Sportster Voice v.34 28.8 After $40 Mfr. Rebate $59.98

Sportster 56K External Faxmodem..... $217.98

rage

LoCie

LaCie 3.24GB Fireball TM SCSI External HD $481.82

LaCie Fireball TM 1.28GB External SCSI HD..... $337.50

LaCie Fireball TM 1.28GB Internal SCSI HD $260.23

LaCie Fireball TM 2.16GB SCSI Internal HD $337.50

MicroTech

MicroTech 200MB SyQuest External Drive $364.77

Polaris II 1GB External HD..... $351.14

Road Runner 1GB PowerBook Drive..... $655.68

Performontz

Performantz 12X CD Drive..... $219.99

VST

VST Expansion Bay 230MB MO Drive for PB 190/5300..... $381.25

ia

Fuji

Fuji CDR-74..... $5.65

Fuji DG90M 4mm Data Grade Tape 1.95GB $5.82

Fuji Zip 100MB Mac Formatted – 2-Pack $27.06

Iomego

Bernoulli MultiDisk 150MB – Single Cartridge..... $94.49

Zip Media Mac100 – 10-Pack ... $149.99

91160 Zip Media Mac100 – 3-Pack $49.99

91159 Zip Media Mac100 – Single..... $17.64

Kyocero

86251 Kyocera CDR-74 ..... $4.71

Performontz

83415 Performantz 200MB Cartridge.... $49.99

83416 Performantz 88MB Cartridge..... $31.19

40359 Performantz SyQuest Comp EZ135MB Cartridge..... $14.49

Philips

89805 Philips CD-Recordable 74-min Disk. $5.54

Sony

01140 Sony 3.5" 230MB M.O. 512b/s ... $10.59

14368 Sony CD-R 650MB 74-min Disk..... $5.29

86838 Sony SRS-91 Speakers..... $129.64

32804 Sony SRS-PC21 PC Speakers.... $21.65

SyQuest

00278 SyQuest 200MB 5.25" Removable Cartridge..... $264.49

97992 SyQuest 270MB 3.5" Removable Cartridge..... $52.29

02183 SyQuest 44MB Cartridge Unfo.... $49.99

00183 SyQuest 88MB Cartridge $45.59

Only $149.95

Zip™ Drive

- Zip Tools software helps you track, organize and find everything
- Unlimited storage on inexpensive 100MB disks
- Easy plug-and-go setup to SCSI connector

Iomega #91825

iomega

#25659 Iomega Jaz Drive $399.95

24910 SyQuest EZ135MB 3.5" Cartridge – 10-Pk $198.89

24909 SyQuest EZ135MB 3.5" Cartridge – 5-Pk $109.99

Verbotim

21922 Verbatim CD-R 74-min 4x..... $5.29

Scanners

AGFA

02135 AGFA Arcus II Scanner for Mac. $1597.80

89851 AGFA StudioScan IIsi Color Scanner $480.03

06686 AGFA StudioStar $991.01

06685 AGFA StudioStar LE..... $793.06

Epson

91939 Epson ES-1000C Flatbed..... $476.40

82671 Epson Expression 636 Executive..... $762.92

82673 Epson Expression 636 Professional..... $1335.96

82659 PhotoPC 500 Color Digital Camera $448.31

Microtek

06673 ScanMaker E3..... $179.78

06672 ScanMaker E6 Standard $331.72

78922 ScanMaker III w/TMA $1398.80

UMAX

77120 Astra 1200S w/Photoshop..... $625.59

80679 Astra 600S..... $238.20

83509 Powerlook II w/Photoshop $1332.58

Visioneer

77102 PaperPort Strobe for Mac $303.37

78931 Visioneer PaperPort VX w/SCSI Cable..... $275.28

Input

Adesso

91854 Adesso Soft Touch Keyboard..... $43.18

90766 Tru-Form Extended Keyboard $63.64

85594 Tru-Form Extended Keyboard w/Touchpad..... $81.82

Apple

93374 Design Keyboard..... $84.49

94461 Extended Keyboard II..... $154.49

Colcomp

91862 Drawing Slate II 12x12" w/Pressure Pen..... $303.58

91869 Drawing Slate II 12x18" w/Pressure Pen..... $494.94

91864 Drawing Slate II 6x9" w/Pressure Pen..... $172.41

Grovis

89394 Advanced Gravis FireBird for Mac $60.24

05998 Gravis MouseStick II $32.95

Kensington

89379 Kensington Mouse 1.0..... $54.53

93628 Kensington Thinking Mouse ADB..... $63.63

Thrustmoster

95201 Thrustmaster Flight Control System $90.64

95200 Thrustmaster Weapons Control System $55.68

Wocom

90644 ArtPad II (ADB) w/Dabbler Bundle $146.81

90643 ArtPad II (ADB) w/Erasing UltraPen $133.23

90646 Artz II 12x12" (Serial) w/Erasing UltraPen $417.26

90645 Artz II 6x8" (ADB) w/Erasing UltraPen $301.35

Printers

Epson

90488 Multi-Protocol Ethernet Interface $382.02

80667 Stylus Color 600 InkJet..... $299.99

80668 Stylus Color 800 InkJet..... $449.99

87980 Stylus Color Pro XL InkJet..... $1499.90

Hewlett-Packard

89150 HP DeskJet 1600CM Color Printer $1925.00

86809 HP DeskJet 340CM Portable Printer $299.99

36156 HP DeskJet 870Cse InkJet Printer..... $499.99

88902 HP DeskWriter 600 Printer $149.99

86345 HP DeskWriter 680C InkJet Printer..... $289.99

82666 HP LaserJet 6MP Printer..... $929.53

13692 HP Tri-Chamber ColorPrint Cartridge $25.13

Surge/Back-up

Americon Power Conversion

94359 APC Back-UPS 200..... $88.82

99364 APC Back-UPS 400..... $141.56

05901 APC Back-UPS 450..... $172.48

11651 APC Back-UPS 600..... $239.10

94396 APC Personal Surge Arrest 7 Outlet $14.88

94395 APC Personal Surge Arrest 7 Outlet w/Phone..... $19.92

94393 APC Professional Surge Arrest 7 Outlet w/Phone..... $32.10

Mobile Accessories

Battery Technology

87494 BTI 2-Slot Battery Charger for Internal 5300/190 Battery $80.11

88751 BTI Auto Power Adapter for PB 5300/190 Series $53.41

93648 BTI PB 100-180c Univ. Power Adapter..... $53.41

06641 BTI PB 140-180c Power Charger . $80.11

85820 Internal 5300/190 Battery..... $80.11

DoubleCase

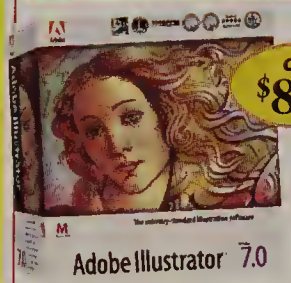
88293 ZipPack Hard Case $30.44

Torgus

07720 Targus Premier Deluxe Leather Case..... $142.05

07454 Targus Universal PowerBook Case..... $59.09

Great Prices
on the Complete Line of Apple Computers



Only $88.98

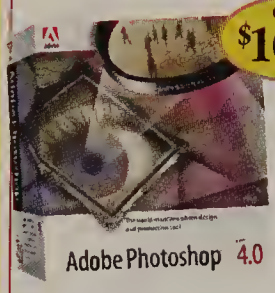
Adobe

Adobe Illustrator 7.0 Upgrade

NEW!

- Greater flexibility!
- Maximum control!
- Increased productivity!
- Expand your creative boundaries by working in layers
- Professional typographic controls

Adobe #88205



Only $164.98

Adobe

Adobe Photoshop 4.0 Upgrade

- Delivers precise layout control
- 48 NEW, faster 32-bit native Effects Filters
- NEW Adjustment Layer gives freedom to experiment

Adobe #83084

WHY PAY MORE when you can get a better price from MAC BARGAIN$?

IF YOU DON'T SEE IT, CALL!

MAC BARGAIN$®

FAX: 1-425-430-3420
E-Mail Address: mac.bargains@mzi.com
707 South Grady Way, Renton, WA 98055-3233

Copyright ©1997 Mac Bargains® is a registered trademark of Multiple Zones International, Inc. All rights reserved.

Our Knowledgeable Sales Advisors help make buying easy!

YOUR SOURCE CODE
BW709

Professional Storage and Computer Solutions

ProDirect

800-524-9952

MW EDITORS' CHOICE · BEST BUY

ALWAYS THE RIGHT DRIVE FOR THE JOB GUARANTEED! 90 Day ProDirect Performance Guarantee

"TEST DRIVE" ANY HARD DRIVE WE SELL FOR ALMOST 3 MONTHS WITH OUR UNBEATABLE **90 DAY PERFORMANCE GUARANTEE.**

ProDIRECT means...
- *Toll-Free Tech Support*
- *Same Day Shipping*
- *No Sales Tax Outside MN*
- *Reseller Pricing Available*
- *Educational and Government Discounts Available*
- *Never a Surcharge!*

FREE *FREE SHIPPIN Only From ProDire*

Service • Performance • Price • ALWAYS™

Quantum — Capacity for the Extraordinary™

Performance SPECIAL$

7200 RPM 512K BUFFER

9.1GB WIDE or NARROW INTERNAL ★★★★ MW Editors' Choice — WOW!	$1175
4.5GB Atlas II WIDE or NARROW INTERNAL	$689
2GB Atlas II INTERNAL	$429
1GB Atlas WIDE or NARROW INTERNAL	$259

Quantum — Capacity for the Extraordinary™

WOW! ProDirect Speed Tuned Hard Drive

STRATUS New Heights of Performance & Value

9 ms Seek 128K Buffer 5400 RPM 5 Year Warranty

2.1GB	$245 int.	$295 PowerStor
3.2GB	$325 int.	$375 PowerStor
4.3GB	$385 int.	$435 PowerStor
6.4GB	$545 int.	$595 PowerStor

MICROPOLIS

Blistering Wide AV SPEED Drives

BIG& FAST! — Replacement ProDirect Year 48 Hour Warranty

Tomahawk M4345WAV		Tomahawk M3391WAV
4.5GB	7.9ms Seek	**9.1GB**
$775	7200 RPM	**$1295**
INTERNAL	2048K Buffer	INTERNAL
	5 Yr. Warranty	

- OPTIMIZED FOR MAXIMUM TRANSFER RATE
- MASSIVE 2MB ON BOARD CACHING BUFFER...NO MORE DROPPED FRAMES
- EXCLUSIVE MICROPOLIS ON THE FLY ERROR CORRECTING CODE...CRITICAL FOR DIRECT TO DISK RECORDING

MICROPOLIS Incredible MANUFACTURER SALE!

WOW! *8MS SEEK 7200 RPM 512K BUFFER 5 YEAR WARRAN*

2GB INTERNAL	M4221	$395
4GB INTERNAL	M3243	$595

- OUR LOWEST PRICED HIGH PERFORMANCE 2 & 4 GB EVE
- GREAT FOR YOUR DATA INTENSIVE APPLICATION
- AV TUNED WITH EMBEDDED SERVO TECHNOLOG

Seagate

Speed and Value!		INTERNAL	POWERSTOR EXTERNAL
2.1GB	ST52160 *Ultra SCSI*	335	385

9 ms Seek 5400 RPM 512K Buffer 5 Year Warranty

10,000 RPM CHEETAH... Awesome!			
4.5 GB	CHEETAH	855	915
4.5 GB	CHEETAH WIDE	925	995
9.1 GB	CHEETAH	1635	1695
9.1 GB	CHEETAH WIDE	1695	1765

8 ms Seek 10,000 RPM 512K Buffer 5 Year Warranty

Legendary Performance!			
2.5 GB	BARRACUDA	495	555
2.5 GB	BARRACUDA WIDE	495	565
4.5 GB	BARRACUDA 4LP	765	825
4.5 GB	BARRACUDA 4LP WIDE	815	885
9.1 GB	BARRACUDA	1295	1355
9.1 GB	BARRACUDA WIDE (BEST BUY)	1355	1425

8 ms Seek 7200 RPM 512K Buffer 5 Year Warranty

Unmatched Capacity

Only 13¢ per megabyte... Great for server or AV work.

23 GB	ELITE	2725	2825
23 GB	Fast & Wide ELITE	2825	2950

10 ms Seek 5400 RPM 2048 Buffer 5 Year Warranty

Quantum — Capacity for the Extraordinary™

"Just Enough" Storage		INTERNAL	POWERSTOR EXTERNAL
540 MB	*MAVERICK*	155	215
730 MB	*LIGHTNING*	185	245

11 ms Seek 4500 RPM 128K Buffer 1 Year Warranty

Extreme Value!			
1280 MB	TEMPEST	195	255
2.1 GB	TEMPEST	239	299
3.2 GB	TEMPEST	319	379

10.5 ms Seek 4500 RPM 128K Buffer 5 Year Warranty

High Performance AV Rated			
1080 MB	ATLAS	259	319

Quantum *SPECIAL PRICE* *Int.* *PowerStor*
2GB Atlas II 429 489
7.9ms Seek 512K Buffer 7200 RPM 5 Year 48 Hour Warranty

4.5 GB	ATLAS II	689	749
9.1 GB	ATLAS II	1175	1235

7.9ms Seek 7200 RPM 512K Buffer
5 Year 48Hour Replacement Warranty on all Atlas Hard Drives

Ultra Wide Max. Performance AV Drives			
2.0 GB ATLAS (*8ms Seek* 7200 RPM)	1024K Buffer	445	525
4.5 GB ATLAS II (*7.9ms Seek* 7200 RPM)	512K Buffer	689	759
9.1 GB ATLAS II (*7.9ms Seek* 7200 RPM)	512K Buffer	1195	1265

MICROPOLIS

		INTERNAL	POWERSTOR EXTERNAL
4.5 GB	M4345	695	755
9.1 GB	M3391	1175	1235

7.9 ms Seek 7200 RPM 512K Buffer 5 Year Warranty

Wide			
4.5 GB	M4345W	725	795
9.1 GB	M3391W	1175	1235

7.9 ms Seek 7200 RPM 512K Buffer 5 Year Warranty

Wide AV AV Tuned Drives... Best for Direct to Disk Recording

4.5 GB	M4345WAV	775	845
9.1 GB	M3391WAV	1295	1375

7.9 ms Seek 7200 RPM 2045K Buffer 5 Year Warranty

IBM

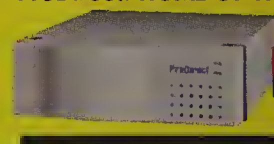
Reliability • Speed • Value		INTERNAL	POWERST EXTERN
2.1 GB	Ultrastar ES	375	43
4.3 GB	Ultrastar ES	545	60
4.3 GB	Ultrastar ES Wide	555	62

• *9 ms Seek* • 512K Buffer • 5400 RPM • 5 Year Warranty

High Performance DTP and AV Drive			
4.5 GB	*Ultrastar XP Wide*	775	84
9.1 GB	*Ultrastar XP Wide*	1195	126

• *7.9ms Seek* • 7200 RPM • 512K Buffer • 5 Year Warranty

ProDirect: HOME OF THE SPEED-TUN HARD DRI



All ProDirect Hard Drives Include
- Free FWB Hard Disk Toolkits and Utilities
- All necessary mounting brackets and cables
- Complete Installation Guide
- Externals include Daisy-chain or System Cable and active terminator

Fast SCSI Acceleration Cards

WORK FASTER WORK SMARTER — ATTO · FWB · adaptec

ATTO Express PCI Ultra SCSI Single Channel.	3
ATTO DualChannel Express PCI Ultra SCSI 3 40 MB/Sec.	5
FWB JackHammer Fast/Wide 16BIT SCSI 2 for Nubus Macs.	4
FWB PCI JackHammer Single Channel. Ultra SCSI PCI	3
ADAPTEC PowerDomain 2940 UWM Single Channel PCI	19
ADAPTEC PowerDomain 3940 UWM Dual Channel PCI	5

* Price with Hard Drive Purchase O

More Power for your Power PC!

PROCESSOR UPGRADE CARDS — Newer · MAXpowr

MAXpowr 180....435*	MAXpowr 360 (DUAL 180'S)..14
MAXpowr 200....615*	MAXpowr 400 (DUAL 200'S)..15
MAXpowr 225....885*	* AFTER $150 MAIL IN REBATE

Get Maximum Mac Transfer Rates with a ProDIRECT PowerRAID

All Raids are Plug&Play Ready to Use!

RAID TUNED — ProDirect Speed Tuned Hard Drive — Replacement ProDirect Year 48 Hour Warranty

All Raids are ready to use, Plug and Play and Include: Pre Configured Adaptec 2940 Ultra Wide Accelerator (Also available with High performance Multi Channel Accelerator), Raid-Tuned Hard Drives, ProDirect Raid Center Enclosures and *Remus 1.4 Raid Software.

Quantum (MW Editors' Choice)
"38 SPECIAL" RAID
Editors Choice Drives
8 GB QUANTUM
FIXED $1895
REMOVABLE $2095

Seagate
Highest AV Transfer Rate
8 GB SEAGATE
CHEETAH
FIXED $2595
REMOVABLE $2795

Seagate
Barracuda Speed
18 GB SEAGATE
BARRACUDA
ULTRA WIDE
FIXED $3745
REMOVABLE $3945

MICROPOLIS PowerRAID M18
18 GB MICROPOLIS ULTRA WIDE
"The fastest array in this test, the ProDirect PowerRAID M18" ★★★★ [1] MacUser 8/97 (BEST BUY)
FIXED $3295 — REMOVABLE $3495
Incredible 4 mb Cache Buffer for Max. AV Transfers

RAID Level 5 Available. Great for Servers!

Seagate
The Legendary
36 GB SEAGATE
BARRACUDA
FIXED $6975
REMOVABLE $7395

Seagate is Media 100 and Truevision Recommended!

Seagate ProDIRECT PowerRAID's

GB	DRIVES	ACCEL CHANNEL	FIXED	HOT-SWA
8	Barracuda ST3471W	Single	2295	249
36	Barracuda ST19171W	Single	6975	739
63	Barracuda ST19171W	Single	11545	1217
90	Barracuda ST19171W	Single	16295	1729
171	Barracuda ST19171W	Single	27995	2919

MICROPOLIS ProDIRECT PowerRAID's

GB	DRIVES	ACCEL CHANNEL	FIXED	HOT-SWA
8	Tomahawk M4345WAV	Single	2295	249
36	Tomahawk M3391WAV	Single	6085	648
54	Tomahawk M3391WAV	Single	8995	959
63	Tomahawk M3391WAV	Single	10445	1107

Awesome Memory Prices

HIGHEST QUALITY LIFE TIME WARRANTY — PRICES SLASHED!

SIZE	DIMMs 168 PIN 60ns 5Volt FAST PAGE	5Volt EDO	3 Volt* StarMax/Gateway	SIMMs 72 PIN 60ns	30 PIN 70ns
4 MB	n/a	n/a	n/a	19	33
8 MB	45	45	49	39	79
16 MB	79	79	89	78	123
32 MB	154	154	159	149	n/a
64 MB	275	275	275	n/a	n/a
128 MB	1039	1039	1099	n/a	n/a

Additional Discounts on Memory Apply with System Purchase. Ask for details

REMOVABLE STORAGE DRIVES

Iomega ZIP
100 MB Removable with One Cartridge
External: $148
Internal PowerMac: $158
Internal Mac Clones: $138
ZIP Cartridges $15.95 ea.
$12. ea. in 10-pack after rebate

Iomega JAZ
1GB Removable with One Cartridge
External: $399
Internal PowerMac: $298
Internal Mac Clones: $278
JAZ Cartridges $88 ea.

SyQuest SyJet
1.5 GB Removable with One Cartridge
External: $489
SyJet Cartridges $98 ea.

YAMAHA CD-R400
6X Reader 4X Writer
ONLY $695
2Mb Buffer with Toast Pro CD-R Software
650 MB CDR Media $4.89 w/CDR Purchase

Hot, New Tape Back-up Driv

NEW! RETROSPECT SOFTWARE INCLUDED

WOW! INCREDIBLE DLT™ 4000 — TRANSFER RATE 40 GB/MIN — $4099

SPEEDY TAPE DRIVES PERFECT FOR AV WORK OR SERVER

IN STOCK TODAY

SPECTACULAR SPEED DDS3 DAT SONY 9000 — *150 MB/Min.* — $1175

ON THE FLY INSTANT BACKUP

BLISTERING SPEED DLT™ 7000 — TRANSFER RATE *600 MB/Min.* — $7395

AWESOME SPEED DLT™ 4000XT — TRANSFER RATE 30 GB/MIN — $2775

CAPACITY	MODEL	TRANSFER RATE	SA
8 GB	HP 1599	90 MB/Min.	114
8 GB	CTD8000	60 MB/Min.	79
8 GB	Sony 7000	90 MB/Min.	97
24 GB	HP1554 DDS3	120 MB/Min.	144
24 GB	Sony 9000 DD3	120 MB/Min.	117
48 GB	HP1553 DDS2	60 MB/Min.	248
144 GB	HP1559 DDS3	120 MB/Min.	399
150 GB	DLT™ 2500XT	150 MB/Min.	489
210 GB	DLT™ 2700XT	150 MB/Min.	653
200 GB	DLT™ 4500	180 MB/Min.	652
280 GB	DLT™ 4700	180 MB/Min.	799

ProDirect 10830 Nesbitt Ave South, Bloomington, MN 55437

Orders:	**800-524-9952**
Hours:	M-F 8AM-7PM Sat. 10AM-3PM
International Orders:	612-884-0012
ProDirect Fax:	612-941-1109
Toll Free Tech Support	800-524-9952
Internet:	www.pdisales.com
E-mail:	info@pdisales.com

ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. RETURNED ORDERS ARE SUBJECT TO A RESTOCKING FEE. INTERNATIONAL CUSTOMERS PAY ALL SHIPPING CHARGES. ALL SHIPPING CHARGES ARE NON-REFUNDABLE. TO RETURN MERCHANDISE CALL FOR AN RMA NUMBER. ALL RMAS MUST BE RETURNED WITHIN 10 BUSINESS DAYS OF ISSUANCE. CUSTOMERS ARE RESPONSIBLE FOR SHIPPING CHARGES TO RETURN PRODUCT

Circle 135 on reader service card

Celebrating 10 Years in Business

Low Prices • Reliability • Experience • Availability

...are just a few reasons why people keep coming back to DigiCore!

ABOVE COST 50%

Check Out Our CYBER SHOP at www.digicore.com

SOFTWARE

MS Office	V4.21	259
Freehand	V7.0	289
Illustrator	V6.0	329
Pagemaker	V6.5	345
PhotoShop	V.4.0	375

VIDEO CARDS

ATI Xclaim GA (2 Meg)	219
IMS TURBO 4 Meg	225
ATI Xclaim VR (4 Meg)	289
#9 Imagine 128 (4 Meg)	299
Radius PC 24/1600	399
IMS TURBO 8 Meg	499
Miromotion DC20	585
Thunder 30/1600	675
#9 Imagine 128 (8 Meg)	725
MiroMotion DC30	865
Thunder Color 30/1600	1899
Targa 2000 PCI	2950

Modems

Supra 33.6 MacnFax	89
Global Village 33.6	149
US Robotics 33.6 Voice	149
US Robotics Sportster 56K	189
GV Platinum PC	199
Global Village 33.6 PC	265
GV Platnum Pro PC	329

Storage

Iomega Zip Drive	145
Quantum 1 GB 3.5"	249
La Cie 1.2 Quantum Ext.	325
La Cie 2.1 Quantum Ext.	399
Iomega Jaz Drive	369
2.1 GB Quantum Atlas	219
4.3 GB Seagate	465
La Cie 4.3 AV IBM Ext.	825
La Cie 9GB AV Ext.	1699
9 GB Seagate	1869
9 GB AV Micropolis	2050
17.2 GB Raid (6 Drives)	5425

CONTROLLERS

Atto Express PCI	319
PCI JackHammer Card	365
Atto Silicon Express	2425
FWB Arrays	CALL

RCD & Optical

Fujitsu Dynamo 640	629
Pinnacle Tahoe 640	659
Pinnacle RCD 4x4	925
Yamaha CD 4X6 w/Toast	689
FWB Hammer Dat 8000	1199
Pinnacle Vertex 2.6 GB	1359
Apex 4.6 Gig Optical	1499

Slide Scanners

SprintScan 35 LE	699
SprintScan 35 +	1699
Nikon CoolScan II	1099
Nikon SuperCoolScan	1599
SprintScan 45	1849

Cameras

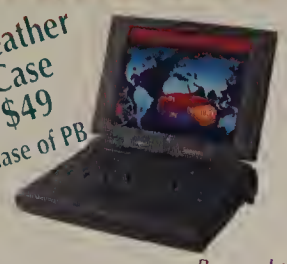
Color Quick Cam	215
Kodak DC 20 Camera	269
Epson PhotoPC	399
Kodak DC 30 Camera	799
Olympus D300L	865

APC Protection

Personal SurgeArrest	19
Professional Surge Arrest	29
Back-Ups 280	129
Back-Ups Office 250	159
Back-Ups Pro 280	179
Back-Ups Pro 650	325
Back-Ups Pro 1000	427

POWERBOOKS

Deluxe Leather Carry Case Only $49 w/Purchase of PB



	Buy	Lease
1400cs/117 12-750	1535	52
1400cs/117 16-750 6xcD	1799	62
1400c/117 16-1GB 6xCD	2535	98
1400c/133 16-1GB 6xCD	2890	98
3400c/180 16-1.3GB	4070	136
3400c/200 16-2G 12xCD	4525	151
3400c/240 16-3G 12xCD	5425	181

Call for Unlisted Products

Memory

TechWorks • Kingston • Name Brand
LIFE TIME WARRANTY

8 Meg Simms & Dimms	$47
16 Meg Simms & Dimms	$79
32 Meg Simms & Dimms	$149
64 Meg Dimms	$285

PRINTERS

StyleWriter 1200 (R)	115	4
StyleWriter 2400 (R)	219	7
StyleWriter 1500	265	9
Epson Color Stylus 600	289	10
Color StyleWriter 2500	329	11
Color SW Portable 2200	369	12
Epson Color Stylus 800	419	14
HP 870cxi	479	16
StyleWriter 1520	769	26
LaserWriter 4/600 PS	825	28
HP 6MP	885	30
LaserWriter 12/640	1450	49
Epson Color Stylus Pro XL	1385	47
HP 5M	1699	57
LaserWriter 16/600	2099	71
HP 4MV	2635	89
GCC XL 1208	3795	128
Color LW 12/660	5299	179

Scanners

	Buy	Lease
Microtek PageWiz	149	5
Microtek E3	199	7
Umax Astra 600	279	9
Agfa SnapScan 600 DPI	299	10
Umax Astra 1200S w/PS	639	22
Microtek E6	539	18
Apple ColorOne 600/27	565	19
Apple ColorOne 1200/30	775	26
Epson Expression Exec.	839	28
HP ScanJet 4C	899	30
Agfa Arcus II w/transp.	1519	51
Microtek ScanMaker III	1379	46
Umax PowerLook II Pro	1270	43

POWERMACS

Custom Config's Available	Buy	Lease
4400/200,16-1.2GB 8xCD	1365	55
4400/200,32-2GB 12x-Mdm	1665	46
7300/180,16-2GB 12xCD	1915	65
7300/200,32-2GB 12x CD	2190	74
6500/225 32-3GB-12x-Mdm	1825	62
6500/250 32-4-12x Zip-Mdm	2099	71
6500SB/250 48-4 12x-Zip-M	2375	80
6500CS/275 32-4 12xCD	2740	92
6500/300,64-4GB 12x-Zip-M	2749	93
8600/200,32-2GB 12x-Zip	2740	92
9600/233,32-4GB 12x-CD	3835	129
9600/200MP 32 4GB 12x	3699	125

MOTOROLA

	Buy	Lease
3000/180DT-6S w/SoftWindows	1398	47
3000/240MT-6S w/SoftWindows	2330	79
3000/200DT 32-1.2GB 8xCD	1335	45
3000/200MT-6E 32-2.5 16x-Enet-Zip	1955	66
3000/240MT-6E 32-2.5 16x-Enet-Zip	2345	79
4000/160MT-6S w/SoftWindows	1975	67
4000/160MT6S 32-2.5GB 8x-Mdm	1860	62
4000/200MT6E 32-2.5GB 16x Enet-Zip	2675	90
4000/200MT 32-2.5GB 8x Enet	2495	84
5000/300MT 32-4.3 16x-Enet-Zip	2675	90

UMAX

	Buy	Lease
C500/180 16/1.2GB 8xCD	1099	37
C600/200 16/1.2GB 8xCD	1435	48
C600/240 24/2.1G 8xCD M	1625	55
J700/180 24/2GB 8xCD M/E	1960	66
S900/180 32-2.1GB 8xCD	2699	91
S900/200 32-2.1GB 8xCD	2799	94
S900/225 32-2.1GB 8xCD	3325	112
S900/233 32-2GB 8xCD	3465	117
S900/200 DP 32-2.1GB 8xcd	3745	126
S900/250 32-2.1GB CD-Zip	4540	153

Power Computing

CALL US • HUGE SAVINGS ON ALL MODELS

Radius • SuperMac
Sony • NEC • Apple
Phillips • Viewsonic
Nokia • CTX • Sanyo
Nanao • Hitachi...

Monitors

	Buy	Lease
Sony 15" 100SX	369	12
Apple 15" AV Display	399	13
Apple MultiScan 1705	599	20
Sony 17 200SX MultiScan	649	22
Sony 17 200SF MultiScan	729	25
ViewSonic 17" PT770	735	25
AppleVision 1710	735	25
Nec XV 17+ Monitor	759	26
Nec M700 17"	799	27
AppleVision 1710AV	835	28
Portrait Pivot 17"	859	30
Raster Ops MC 20	1285	43
ViewSonic 21" PT813	1529	52
Sony 300SFT 20"	1589	54
Apple 20" 850 MultiScan	1675	56
Apple 20" 850 AV MultiScan	1799	63
Radius PressView 17SR	1850	62
RasterOps MC801 HR	1959	66
Radius PressView 21SR	2975	99

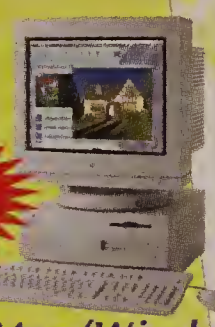
Custom Configuration Specialists

We will configure any system to YOUR Needs

Lease $59 per mo

4400/200 Internet Ready

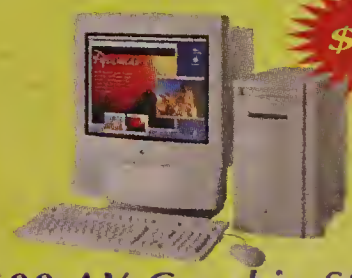
PowerMac 4400 16-1.2 Gig 8xCD
33.6 External Modem w/Internet Software
15" MultiScan Monitor, Apple Ext. Keyboard
Sale Price.....$1765
Add $99 to Upg, to 32 Meg. (Installed)



Lease $94 per mo

7300/200 Mac/Windows

PowerMac 7300/200, 32-2 Gig CD
Insignia SoftWindows 95 V4.0
15" MultiScan Display, Apple Ext. Keyboard
Sale Price.....$2790
Add $89 for 33.6 Fax/Modem



Lease $146 per mo

8600 AV Graphic Station

PowerMac 8600/200 64/2 Gig 12xCD
Apple 1710 AV Monitor, Zip Drive
IMS 4 Meg., Apple Ext. Keyboard
Adobe PageMaker & Adobe PhotoShop
Sale Price.....$4325

GE On-Site Service Available for any Systems

DiGiCore

We will Beat any Verified Competitors Price*

Order Toll Free

800-858-4622

International & Dealers 818-785-2800

24 hr FaxLine 818-785-3100

E-Mail (Quick Response)
sales@digicore.com

www.digicore.com
• Se Habla Espanol
• Nihongo demo Do-zo

All Major Credit Cards • CODs
Wire Transfers • Corporate POs

C.O.D

Open 7am - 6pm M-f & 7am to 12pm Sat. Pacific Time•
Due to publication time constraints prices may vary •
Call Us for the Lowest and Most Current Price •
Lease Payments based on 36 Mo. O.A.C. •
Leasing is Available to Approved Business & Individuals •
All Prices Reflect COD Discount & Subject to Availability •
Possible Restocking Fee on Non-Defective Returns •
All Returns/Repairs require an RMA Number •

DigiCore Inc 15500 Erwin St • Van Nuys CA 91411

MAC PROFESSIONAL INC.

800 BIG-4-MAC 244-4-622

TEL: (818) 719-9200 • FAX: (818) 719-911

SCHOOL, U.S. GOV'T, CORPORATE PO'S WELCOME • www.macprofessional.com

6430 VARIEL AVE. #105, WOODLAND HILLS, CA 9136

POWER MACS

7300/180	16/2000-CD	CALL
7300/200	32/2000-CD	2359
8600/200	32/2000-CD-ZIP	2699
9600/233	32/4000-CD	3099
9600/200 MP	32/4000-CD	3649
6500/225	32/3000-CD	1899
6500/250	32/4000-CD	2150
6500/250	48/4000-CD-ZIP	2450
6500/275	32/4000-CD	2625
6500/300	64/4 GB-CD-ZIP	2777
4400/200	16/2000-CD	1389
4400/200	32/2000-CD.BUS	1669
PERFORMA		
6400/200	16/2.4-CD KY/BD	CALL

SPECIAL

POWERBOOK 1400CS/133 16/1GB - CD

NEW

CALL

UMAX COMPUTERS

PRICE WAR!

S 900/250 MP	64/4 GB ULTRA SCSI RAID IMS 8 MB -CD ZIP	$6250
S 900/200 MP	32/2.1 GB - CD KEYBOARD	3195
S 900/250	32/2.1 GB - CD IMS 8 MB	3595
S900/233	32/2.1 GB - CD IMS 8 MB	2995
S 900/200	32/2.1 GB - CD IMS 4 MB	2595
J 700/180	24/2.1 GB - CD IMS 2 MB / MODEM	1888

GREAT BUY!

FREE CARRYING CASE W/PURCHASE

POWERBOOKS

1400 CS	16/750-CD	$1750
1400 C	16/1000-CD	2595
DUO 2400 C	NEW	CALL
3400 C/180	16/1.3-CD	3880
3400 C/200	16/200-CD	4295
3400 C/240	16/3000-CD	5395

NEW SPECIAL

WORKGROUP SERVERS

7350/180	48/4000-CD AS	$3449
7350/180	48/4000-CD INTERNET	3249
7350/180	48/4000-CD	2775
9650/233	64/4000-CD-INTERNET	5450
9650/233	64/2X4000-CD AS	6450
9650/233	64/4000-AS-DAT	6450
NETWORK SERVER 500/700		CALL

SCANNERS

AGFA STUDIO STAR LE	$747
AGFA STUDIO STAR FULL	947
AGFA ARCUS II	1495
AGFA DUOSCAN	4159
UMAX ASTRA 600 PHOTO DELUX	249
UMAX ASTRA1200PHOTOSHOPFULL	649
UMAX POWERLOOK II 36 BIT	1299
UMAX MIRAGE II ADVANCE	6450
UMAX MIRAGE II MASTER	7250
LINOTYPE HELL JADE	650
LINOTYPE HELL SAPHIRE	1795
LINOTYPE HELL SAPHIRE ULTRA	3588
LINOTYPE HELL OPAL 11X17	5455
EPSON 636 EXEC	757
EPSON 636 ARTIST	939
EPSON 636 PROFESSIONAL	1299
POLAROID SPRINTSCAN 35/LE	717
POLAROID SPRINTSCAN 35/ES	1395
POLAROID SPRINTSCAN 35 PLUS	1659
POLAROID SPRINTSCAN 45	8195

DIGITAL VIDEO EDITING SYSTEM

www.media100.com

INCLUDES:16 GIG DISK ARRAY / 17"MONITOR/ AFTER EFFECT

POWER MAC 9600/233	96/4000-CD/MEDIA 100 QX/ADOBE PREMIER	$9950
POWER MAC 9600/233	96/4000-CD/MEDIA 100 QXC/PREMIER	$11850
POWER MAC 9600/233	96/4000-CD/MEDIA 100 LE	$12950
POWER MAC 9600/233	96/4000-CD/MEDIA 100 LX	$16950
POWER MAC 9600/233	96/4000-CD/TARGA 2000 PRO PREMIER	$11750

TARGA 1000	$ 1495	MIRO DC 20	$ 589
TARGA 1000 PRO	1950	MIRO DC 30	869
TARGA 2000	2950	MIRO DC 100	899

EXCELLENT LEASING TERMS

WE SPECIALIZE IN CUSTOM MADE CONFIGURATIONS

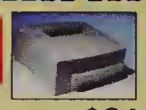
BEST PRICE AVAILABILITY CALL 4 LATES

DRIVES/MEDIA

CALL NOW!

• EZ QUEST BUNDLES • EXCLUSIVE EXTERNAL JAZ+5 PACK CARTRIDGES	695
ZIP DR / JAZ DR	$145 / 389
FUJITSU 640 MO	425
PINNACLE MICRO VERTEX 2.6	995
PINNACLE MICRO APEX 4.6	1399
YAMAHA 6X4X CDR/TOAST	749
JAZ / YAMAHA DUO COMBO	1149
EZ FLYER 230	195
SYJET 1.5 GB EXTERNAL	479
12X EXTERNAL CD	199
SONY 4 / 8 GB EXTERNAL TAPE	995
SONY 12 / 24 GB EXT. TAPE	1269
8 GIG DISK ARRAY W/CONTROLER	2495
18 GIG DISK ARRAY W/CONTROLLER	3450
32 GIG DISK ARRAY W/CONTROLLER	6450
10 PACK ZIP / 5 PACK JAZ	129 / 425
KODAK BLANK CD	7

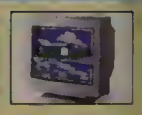
PRINTERS



APPLE NEW PRINTERS	$CALL
CLR STYLEWRITER 2200/2500	219/269
LASERWRITER 4/600	795
LASERWRITER 12/640	1495
LASER 12/640 PLUS (DUPLEX)	2185
HP 6 MP / 5 M	885/1555
HP 4 MV 11x17	2295
EPSON STYLUS 600/800	295/438
EPSON STYLUS SC 3000 NEW!	1795
GCC 608 11x17	2150
GCC 808 11x17	2850
GCC 616 11x17	2495
GCC 1208 11x17	3895
GCC 1208 SUPERSIZE	5350
TEKTRONICS PHASER 140/350	CALL
ALPS MD 2010 COLOR	377
ALPS MD 2300 COLOR	635
ALPS MD 4000	577

GREAT BUY!

MONITORS



APPLE 15 AV / 1705	$385/599
APPLE 1710 / 1710 AV	759/895
APPLE VISION 850 20"	1499
RASTEROPS MC 600	599
RASTEROPS MC 611	757
RASTEROPS MC 19 NEW	1095
RASTEROPS MC 20	1299
RASTEROPS MC 801	1599
RASTEROPS MC 801 HR	1785
VIEWSONIC V 773	569
VIEWSONIC V 775	689
VIEWSONIC 17 GA	649
VIEWSONIC PT 775	888
VIEWSONIC GT 775	658
VIEWSONIC PT 810	1529
VIEWSONIC PT 815	1649
RADIUS 17 SR PRESSVIEW	1655
RADIUS 21 SR PRESSVIEW	CALL
RADIUS PRECISION VIEW 21	1645

NEW SPECIAL

HOT!

MEMORY

16/32/64 DIMM	85/155/285
16/32/64 SIMM 72 PIN	85/141/395
POWER BOOK 500 SERIES 8/16/32	79/145/255
POWER BOOK 1400 SERIES 8/16/24	89/135/175
POWER BOOK 3400 SERIES 24/64/128	199/499/999

VIDEO CARDS

IMS 4 MB	$249
IMS 8 MB	459
RADIUS THUNDER -3D	2795
THUNDER POWER 30/1920	1075
THUNDER COLOR 30/1600	1925

SPECIAL OF THE MONTH $999

POWER MAC 5200 8/800-CD 15" MONITOR BUILT I

ALL PRICES ARE CASH. NOT RESPONSIBLE FOR TYPOS. PRICES ARE SUBJECT TO CHANGE • VISA/MC/AMEX •

Circle 64 on reader service card

WE WILL TRY TO MATCH OR BEAT ANY ADVERTISED PRICE. CALL FOR LATEST PRICING!!

WE ACCEPT PO'S FROM QUALIFIED FIRMS

M E M O R Y

SECURITY WILL CALL WINDOW NOW OPEN!
NO SURCHARGE FOR MC, VISA AE & DISCOVER

L.A. Trade has served the PC market for 10 years...

MACINTOSH MEMORY UPGRADES

Now we bring our expertise to the Apple Macintosh user.

YOUR MACHINE	STANDARD	MAX	VIDEO UPGRADE	VIDEO COST	256K/ 512K/1MG CACHE	2MB	4MB	6MB	8MB	10MB	12MB	16MB	20MB	24MB	32MB	48MB	64MB	128MB
Apple PowerBook 190, 190CS	4	32					59		99		129	139		169	229			
Apple PowerBook 520, 520c, 540, 540c Notebook	4	36					49		69		89	109		169	229			
Apple PowerBook DUO 210, 230, 250 Notebook	4	24					49	65	79	99	119	139	175	28=248				
Apple PowerBook DUO 270c Notebook	4	32					49	65	79	99	119	139	175	28=249				
Apple PowerBook DUO 280, 280c Notebook	4	40					49	65	79	99	119	139	175	28=249	36=329			
Apple PowerBook DUO 2300c/100 Notebook	4	40							79	99	119	139	175	199	249	419		
Apple PowerBook 1400	4	40							79			129		199	239	419		
Apple PowerBook 3400C EDO												Call			Call			Call
Apple PowerBook 5300 Series											129	149		169	229	479		
Apple Macintosh TV	5	8					24											
Apple Macintosh IIfx (64 pin)	4	128					119					199					556	
Apple Macintosh IIsi	2/3/5	17					40		36			128						
Apple Macintosh IIvx & IIvi	4	68	512k	59			40		60			128					556	
Apple Macintosh Classic II, LC, LCII	2/4	10	512k	59		24	30		64									
Apple Macintosh LCIII, LC475, LC550, LC575, LC580	4	36	256k	34			24		49			89			169			
Apple Macintosh LC520	5	36					24		49			89			169			
Apple Macintosh LC580	5	36					24		49			89			169			
Apple Macintosh LC499	4	36					24		49			89			169			
Apple Macintosh LC5200	5	36					24		49			89			169			
Apple Macintosh LC630	5	36					24		49			89			169			
Apple Macintosh IIci	1/5	128					40					128			256		556	
Apple Macintosh II, IIx, IIcx (w/Pal)	1	32					48		124			199						
Apple Macintosh SE30	1/2	32					40		96			136			256			
Apple Performa 400	4	10				10	20		80									
Apple Performa 405, 410, 430	4	10	512k	68		10	20		80									
Apple Performa 450, 460, 466, 467, 475, 476	4	36	256k/512k	34/68			29		49			99			169			
Apple Performa 550, 560, 575, 577, 578, 580	5	36					29		49			99			169			
Apple Performa 600, 600CD	4	68	512k	59			40					128					556	
Apple Performa 6110CD, 6112CD, 6115CD (pairs)	8/16	72					29		49			89			169			
Apple Performa 6117CD, 6118CD (pairs)	8/16	72					29		49			89			169			
Apple Performa 630, 630CD, 636	4	36					29		49			89			169			
Apple Performa 631CD, 636CD, 640CD	8	52					29		49			89			169			
Apple Performa 635CD	5	36					29		49			89			169			
Apple Performa 637CD, 638CD	8	36					29		49			89			169			
Apple Performa 5200 Series 5200CD, 5215CD, 5300	8	64					29		49			89			169			
Apple Performa 6100 Series 6116CD (pairs)	8	72					29		49			89			169			
Apple Performa 6200 Series 6200CD, 6216CD, 6218CD	8	64					29		49			89			169			
Apple Performa 6200 Series 6220CD, 6230CD, 6290	8	64					29		49			89			169			
Apple Performa 6205CD, 6214CD	8	64					29		49			89			169			
Apple Performa 6300CD, 6320	16	64					29		49			89			169			
Apple Performa 6400CD, 6360 (2K Refresh)	16	64			94				59			109			209		389	
Apple Centris 610, 650, 660 AV	4	68	512k	59			29		49			89			169			
Apple Quadra 605	4	36	512k	59			29		49			89			169			
Apple Quadra 610	4	68					29		49			89			169			
Apple Quadra 630	4	36					29		49			89			169			
Apple Quadra 650	4/8	132/136					29		49			89			169			
Apple Quadra 660AV	4	68					29		49			89			169			
Apple Quadra 700	4	68	512k	59			48					136					559	
Apple Quadra 800 (pairs)	8	136	512k	59			29		49			89			169			
Apple Quadra 840AV	8	128	512k	59			29		49			89			169			
Apple Quadra 900	4	256	512k	59			48					136					556	
Apple Quadra 950	8	256	512k	59			48					136					556	
Apple Workgroup Servers	–	Call					Call		Call			Call			Call			
Apple Power Macintosh 5400/120 (2k)		136			99/149				59			109I			209		389	
Apple Power Macintosh 4400 (EDO 3.3V)	8	72	2M/69, 4M/119	59	99/149				55			99			199		387	1199
Apple Power Macintosh 6100/60 (pairs), 66, 66AV	8/16	72			29/–		29		49			89			169			
Apple Power Macintosh 7100/66 (pairs), 66AV, 80, 80AV	8/16	136	512k	59	29/–		29		49			89			169			
Apple Power Macintosh 7200/75/90/120	8/16	256	1mg	49	69/109/229				55			99			199		387	1199
Apple Power Macintosh 7500/100 (168 pin), 7600/120	8/16	1gig/512	1mg	49	69/109/229				55			99			199		387	1199
Apple Power Macintosh 8100/80 (peirs), 100, 100AV, 110	8/16	264	512k	59	29/109		29		49			89			169			
Apple Power Macintosh 8200, 100, 120	8/16	256	512k	39	—/129		29		49			89			169			
Apple Power Macintosh 9500/120, 132, 150	8/16	1gig/512	1mg	49	69/109/229				55			99			199		387	
Apple Power Macintosh 9500/120, 9500/132, 150, 180, 200	8/16	768	2mg	87					55			99			189		387	1199
Apple Power Macintosh 9500/150	8/16	264	2mg	87					55			99			189		387	1199
Color Laserwriter 12/600 PS							29					89						
Color Laserwriter 12/640 PS							29		49			89			169			
Color Laserwriter 16/600 PS							29		49			89						
Motorola Starmax 3000 EDO/160, 200; 4000/160, 200	16/32											99			189			

NEW 168 Pin EDO 3.3V Dimms Call!

APPLE NOTEBOOK MEMORY BLOWOUT!!

LIMITED QUANTITIES!!

Duo 210, 230, 250, 270, 280	4mg/8mg/14mg/24mg	.....29/59/89/119
Powerbook 100	4mg	29
Powerbook 160, 165, 180	4mg/6mg/8mg/10mg	.....39/69/89/159
Powerbook 140, 145, 170	6mg	79
Powerbook 520, 520C, 540, 540C	4mg/8mg	.....29/49
Powerbook 5300	8mg	59
Powerbook 150	12mg	99
Powerbook 1400	6mg/16mg/24mg	.....49/89/129
2 x 8	2mg Simms	9

CHECK OUT DUR WEBSITE FDR DAILY UPDATES DN SPECIALS

CALL FOR NEW MODELS NOT LISTED

All products brand new & guaranteed • We buy excess inventory

Trademarks are registered with their respective companies.

L.A. TRADE

22825 Lockness Avenue • Torrance, CA 90501

CUSTOMER SERVICE & TECHNICAL: OPEN M–F, 9–4 PST

POWER COMPUTING

	8MEG	16 MEG	32MEG	64MEG
POWER 80, 100, 110, 120	55.00	99.00	189.00	379.00
POWER CENTER 120, 132, 150, 166, 180	55.00	99.00	189.00	379.00
POWER CURVE 601/120	55.00	99.00	189.00	379.00
POWER TOWER 166/ 180	55.00	99.00	189.00	379.00
POWER TOWER PRO 180, 200, 225	55.00	99.00	189.00	379.00
POWER WAVE 604/120	55.00	99.00	189.00	379.00
POWER WAVE 604/132, 150	55.00	99.00	189.00	379.00
POWER COMPUTING POWER BASE (EDO)	CALL	CALL	CALL	CALL

NO SURCHARGE FOR MASTERCARD, AMEX, VISA OR DISCOVER. PURCHASE ORDERS ACCEPTED FROM FORTUNE 2000, GOVERNMENT & INSTITUTIONS. California orders add 8.25% sales tax. Returned orders or ordered wrong parts are subject to a 20% restocking fee. We accept International orders shipped via UPS Air, APO, FPO orders welcome. Customers are expected to pay customs and "other" charges if shipped Int'l. All credit card charges verified for fraudulent use. SORRY, NO REFUNDS AFTER 30 DAYS – EXCHANGES ONLY. If you receive defective merchandise we exchange only—no refunds. We accept MC, VISA, Discover, AE, prepaid orders, purchase orders, wire transfer, COD (cashiers check) orders, cash & cashiers checks. Orders shipped by UPS, FEDX must be signed for • ALL MANFACTURER PART #'S ARE FOR REF. ONLY • MINIMUM ORDER $40.00 • NO REFUNDS ON SHIPPING.

310-539-0019
FAX: 310-539-5844

SECURITY WILL CALL WINDOW NOW OPEN

CALL TOLL FREE **1-800-433-3726** (US and Canada)

ESTAB. 1985

Prices & Availability Subject to Change Without Notice

Mon-Fri, 8:00 a.m. to 5:00 p.m. PST
Sat. 10:00 a.m. to 12:00 noon

Check out our website at www.4LATrade.com **e-mail: sales@latrade.win.net**

THE STORAGE LEADER

1-800-260-8549

HARD DRIVES

Quantum 1.2GB $199 — 128K CACHE, 4500 RPM, Internal

Quantum 2.1GB $259 Internal

Western Digital 4.3GB 7200RPM $699 Internal

Quantum

Quantum Tempest drives carry a 3 Year Warranty
Quantum Atlas drives carry a 5 Year Warranty

Description	Model	Access	Interface	RPM	Int	Ext
1.2GB Tempest	QM31280TMS	10.5ms	Ultra SCSI-3	4500	$199	$249
2.1GB Tempest	QM32100TMA	11ms	Fast ATA-2 (IDE)	4500	$209	----
2.1GB Tempest	QM32150TMS	10.5ms	Ultra SCSI-3	4500	$259	$309
2.1GB Stratus	QM32160STS	10ms	Ultra SCSI-3	5400	$299	$349
3.2GB Tempest	QM33200TMA	11ms	Fast ATA-2 (IDE)	4500	$249	----
3.2GB Stratus	QM33240STS	10ms	Ultra SCSI-3	5400	$359	$409
3.8GB Tempest	QM33840TMA	11ms	Fast ATA-2 (IDE)	4500	$299	----
4.3GB Stratus	QM34320STS	10ms	Ultra SCSI-3	5400	$429	$479
4.5GB Atlas II	QM34550ALS	8ms	Ultra SCSI-3	7200	$699	$749
4.5GB Atlas II	QM34550ALW	8ms	UltraWide SCSI-3	7200	$799	$879
6.4GB Stratus	QM36480STS	10ms	Ultra SCSI-3	5400	$589	$639
9.1GB Atlas II	QM39100ALS	8ms	Ultra SCSI-3	7200	$1329	$1379
9.1GB Atlas II	QM39100ALW	8ms	UltraWide SCSI-3	7200	$1369	$1449

Western Digital

Western Digital drives carry a 5 Year Warranty

Description	Model	Access	Interface	RPM	Int	Ext
2.1GB Enterprise	WDE2170S	8ms	Ultra SCSI-3	7200	$539	$589
2.1GB Enterprise	WDE2170W	8ms	UltraWide SCSI-3	7200	$589	$669
4.3GB Enterprise	WDE4360S	8ms	Ultra SCSI-3	7200	$699	$749
4.3GB Enterprise	WDE4360W	8ms	UltraWide SCSI-3	7200	$749	$829

Seagate

Seagate drives carry a 5 Year Warranty

Description	Model	Access	Interface	RPM	Int	Ext
2.1GB Barracuda 4LP	ST32171N	8.5ms	Ultra SCSI-3	7200	$579	$629
2.1GB Barracuda 4LP	ST32171W	8.5ms	UltraWide SCSI-3	7200	$629	$709
4.3GB Barracuda 4LP	ST34371N	8.5ms	Ultra SCSI-3	7200	$799	$849
4.3GB Barracuda 4LP	ST34371W	8.5ms	UltraWide SCSI-3	7200	$849	$929
4.3GB Cheetah	ST34501N	8ms	Ultra SCSI-3	10000	$929	$979
4.3GB Cheetah	ST34501W	8ms	UltraWide SCSI-3	10000	$999	$1079
9.1GB Barracuda 9	ST19171N	8ms	Ultra SCSI-3	7200	$1399	$1449
9.1GB Barracuda 9	ST19171W	8ms	UltraWide SCSI-3	7200	$1499	$1579
9.1GB Cheetah	ST19101N	8ms	Ultra SCSI-3	10000	$1649	$1699
9.1GB Cheetah	ST19101W	8ms	UltraWide SCSI-3	10000	$1719	$1799
23GB Elite 23	ST423451N	8ms	Fast SCSI-2	5400	$2899	$2999
23GB Elite 23	ST423451W	8ms	Fast&Wide SCSI-2	5400	$2999	$3099

IBM®

I8M drives carry a 5 Year Warranty

Description	Model	Access	Interface	RPM	Int	Ext
4.3GB UltraStar	09J1035	8.5ms	Ultra SCSI 3	5400	$569	$619

TOSHIBA

2.5" HARD DRIVES

Description	Model	Access	Interface	RPM	Int	Ext
810MB TravelStar	MK1926FBV	12ms	2.5" Fast SCSI	4500	$399	----

THE CLUBMAC PACKAGE ClubMac drives are preformatted and thoroughly tested. ClubMac drives include a 30-Day Money Back Guarantee, Charismac Anubis Formatting Utility software, user's guide, brackets (wide drives include internal ribbon cable), 25/50-pin SCSI cable and power cord for external drives (wide drives include 68/68 pin SCSI cable).

MEMORY

Memory prices fluctuate frequently, please call for latest prices.

72pin SIMMS

4MB	$24	8MB	$42
16MB	$79	32MB	$165

168pin DIMMS

8MB	$24	16MB	$88
32MB	$165	64MB	$345

EDO DIMMS

16MB 5V	$95	32MB 5V	$185
16MB 3.3V	$99	32MB 3.3V	$199

30pin SIMMS

4MB 4 x 8 SIMMS $35

POWERBOOK MEMORY

3400 SERIES

16MB	$135	32MB	$249
64MB	$545	128MB	$1159

1400 SERIES

16MB	$149	32MB	$215

Video RAM

2M8 VRAM for ATI XClaim GA	$85
4M8SGRAM 4400/Starmax	$89
1MB VRAM 7200 - 8500	$35

CLUBMAC CD & CD RECORDABL

CLUBMAC CD-ROM READERS

12X 140ms 1800k/sec	$159
NEC 4X 7 Disc Changer	$179

CLUBMAC CD-RECORDERS

2X/6X CD-R w/Toast Pro 3.0	
4X/6X CD-R w/Toast Pro 3.0	

CLUBMAC CD-REWRITABLE

2X/2X/6X CDRW w/Toast Pro 3.0	

THE CLUBMAC PACKAGE

ClubMac CD-ROM & CD Recorders are thoroughly tested. CD-ROM & CD Recorders include a 30-Day Money Back Guar
Charismac CD AutoCache utility software, user's guide, 25/50-pin SCSI cable, terminator, and power cord.

Buy a syJet July 14th - Oct 27 1997 and m
for a Free syJet cartridge - $125 Value

TAPE BACK-UP

CLUBMAC TAPE BACK-UP

4-8GB DDS-2 Compression DAT Drive	$799
4-8GB DDS-2 Performance DAT Drive	$899
12-24GB DDS-3 Lightning DAT Drive	$1199
25-50GB 8mm AIT Drive	$3699
20-40GB DLT Drive w/ Retrospect	$4299

REMOVABL

REMOVABLE DRIVES

SyQuest SyJet 1.5GB 3.5"	
ClubMac SyQuest 200MB 5.25"	
SyQuest EZ Flyer 230MB 3.5"	
Nomai 750MB 3.5"	

GENUINE SYQUEST REMOVABLE MEDIA

Media	Qty 1	Qty 10
44MB	$40ea	$39.50ea
88MB	$44ea	$43.50ea
200MB	$62ea	$61ea
270MB	$57ea	$56ea
EZ230MB	$30ea	$29.50ea
1.5GB SyJet	$124ea	$110ea

Zip Drive Solutions

IOMEGA ZIP DRIVES

Zip Drive w/one cartridge	$149.95
Zip Bundle - Zip drive, 11 Disks, Case, 2 Caddy's	$279*
Zip Drive Internal - all PowerMacs	$159
Zip Drive Internal - all PowerComputing/Umax	$139

Jaz Drive Solutions

IOMEGA JAZ DRIVES

Jaz Drive w/one cartridge	
ClubMac Jaz Drive w/three cartridges	
Jaz Drive Internal - all PowerMacs	
Jaz Drive Internal - all PowerComputing/Umax	

IOMEGA JAZ AND ZIP MEDIA

ZIP MEDIA

Format	Part#	Qty 1-2	Qty 3-9	Qty 10+*
MAC	1040 1006	$19.95	$16.65	$12.99*
PC	1040 1009	$19.95	$16.65	$12.99*

*$20 Mail-in rebate · Zip 10 pak only

JAZ MEDIA

Format	Part#	Qty 1-2	Qty 3-5
MAC	1040 1015	$124.95	$99.95
PC	1040 1037	$124.95	$99.95

Source Code 690997

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

ClubMac®

1-800-260-8549

Order On-Line @ http://www.club-mac.com

WARRANTIES All items manufactured by ClubMac are for warranty repair. All other items carry manufacturer's BACK GUARANTEE. All products manufactured by ClubMac money back guarantee. ClubMac extends all other policies to its customers. Non-ClubMac products carry 30 guarantee when specified. RETURNS Call for RMA is returned WITHOUT an RMA number will be refused. INFORMATION AND PRICES ARE SUBJECT TO CHANGE NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS

LUBMAC IS AN APPLE AUTHORIZED CATALOG RESELLER

Authorized Catalog Reseller

PowerMac 7300

Starting at $2099*

- or 200MHz 604e
- or 32MB RAM
- 2GB HD
- 12X CD ROM

/180MHz 604e
RAM, 2GB HD, 12X CD....$2099*
/200MHz 604e
AM, 2GB HD, 12X CD..$2399*
*Monitor sold separately

PowerMac 8600

- 200MHz 604e
- 32MB RAM
- 2GB hard drive
- 12X CD ROM

$2999*
*Monitor sold separately

PowerMac 9600

- 233MHz 604e
- 32MB RAM
- 4GB hard drive
- 12X CD ROM

$3495*
*Monitor sold separately

PowerBook 1400 117MHz

$1999

- 11.3" Active Matrix
- 117MHz 603e
- 16MB RAM
- 750MB hard drive
- 6X CD ROM

PowerBook 1400 133MHz

- 11.3" Active Matrix Screen
- 133MHz 603e
- 16MB RAM
- 1GB hard drive
- 6X CD ROM

$3199

PowerBook 3400 240MHz

- 12.1" Active Matrix Screen
- 240MHz 603e
- 16MB RAM
- 3GB hard drive
- 12X CD ROM

$5999

PowerComputing PowerCenterPro

Exclusive 60MHz Bus

Starting at $1945*

- r 210MHz PowerPC 604e Processor
- sive 60MHz 8us
- aphics acceleration
- evel 2 Cache
- deable CPU daughter Card
- 16M8 RAM
- 2G8 Hard Drive
- 16X CD ROM
- $1000 software

ld separately. MiniTower models available for $100 more.
*100 mail-in rebate. Expires 7/31/97

- Center Pro 180LP 604e, z, 16MB RAM, 2.0GB HD, 16X CD $1945*
- Center Pro210LP 604e, z, 16MB RAM, 2.0GB HD, 16X CD $2345*
- Base200LP 603e, z, 16MB RAM, 2.0GB HD, 12X CD, 2MB VRAM ..... $1249*†
- Base240LP 603e, z, 16MB RAM, 2.0GB HD, 12X CD, 2MB VRAM ..... $1449*†

MOTOROLA StarMax

Up to 240MHz PowerPC

5 Year Warranty!

Starting at $1249*

NEW Configurations

NEW Lower Prices

* Monitor sold separately

StarMax 3000, 603e 180MHz, 16MB RAM, 1.2GB HD, 1MB VRAM, 8X CD, 256K L2 Cache, Software Bundle $1249*

ClubMac carries the full line of StarMax Systems!

UMAX SUPERMAC S900L

- 250MHz 604e
- 32MB RAM
- 8X CD ROM
- 2.1GB HD
- 128 IMS Video Card 8MB

*Monitor sold separately

250Mhz

LOWEST PRICE EVER!

$3995*

SuperMac C500 180i 603e, 180MHz, 16MB RAM, 1.2GB HD, 8X CD, 33.6 modem, $1200 Bundled Software $1095*

SuperMac J700 150 604, 150MHz, 16MB RAM, 2.1GB HD, 8X CD $1499*

SuperMac S900L 233MHZ 604e, 32MB RAM, 2.1GB HD, 128 IMS Video Card 8MB, 8X CD $3195*

MESSAGEPAD

Apple Newton MessagePad 2000

NOW SHIPPING!

Starting At $949

- Newton MessagePad 120 ..... $299
- Newton MessagePad 2000 ..... $949
- Newton MessagePad 2000 Bundle $1099

MONITORS

SONY. SuiScan 200SX

- Viewable image
- m Aperture
- Pitch

S106 1024

$648

- an 100SX 15", 1024x768 ..... $354
- an 100SF 15", 1024x768 on screen display $394
- an 200SX 17", 1024x768 ..... $648
- an 200SF 17", 1152x870 ..... $771
- an 300SFT 20", 1280x1024 ..... $1595

- e Scan 15AV 15", 1024x768 ..... $445
- e Scan 1705 17", 1280x768 ..... $629
- sion 850 20", 1600x1200 ..... $1849
- sion 850 AV 20", 1600x1200 ..... $1999

S

- ew 17SR 17", 1600x1200 ..... $1699
- ew 21SR 21", 1600x1200 ..... $3199
- nView 21", 1600x1200 ..... $1799

ROPS

- can MC7515 19", 1600x1200 ..... $1099
- can MC600 17", 1280x1024 ..... $599
- can MC801HR 21", 1600x1280 ..... $1879

- 5", 1024x768 .28 dot pitch $369
- 7", 1024x768 .28 dot pitch $757
- 1", 1360x1024 .28 dot pitch $1499

ONIC

- 17" 1280x1024, .25 dot pitch $689
- 21" 1600x1200, .25 dot pitch $1499
- 21" 1800x1440, .25 dot pitch $1639

GRAPHIC CARDS

Xclaim VR™ 4MB

$244.25

A143 1023

ATI

- XClaim VR™ 2MB PCI graphics card $219.95
- XClaim VR™ 4MB PCI graphics card $244.25
- XClaim TV™ Tuner $82.00

INTEGRATED MICRO SOLUTIONS

- Twin Turbo 128M 2MB PCI $269.00
- Twin Turbo 128M 4MB PCI $369.00
- Twin Turbo 128M 8MB PCI $599.00
- IMS Turbo TV $129.99

RADIUS

- ThunderPower 30/1600 (PCI) $799
- ThunderPower 30/1920 (PCI) $1099
- Thunder 3D (PCI) $2599
- VideoVision Studio 2.5.1 (NuBus) $1399
- VideoVision Studio PCI 2.0 ML $2599

SCANNERS

VISIONEER PaperPort Strobe COLOR

$329

V029 1017

AGFA

- Agfa SnapScan for MAC 600DPI 24-Bit $299
- Agfa Arcus II Desktop Pro Scanner $1645

UMAX

- UMAX Astra 600S $239
- UMAX Powerlook II w/transparency adapter $1357

EPSON

- Epson Expression 636 Executive Model $799
- Epson Expression 636 Artist Model $999
- Epson Expression 636 Professional Model $1399

Microtek

- Microtek Scanmaker III w/trans adapter $1495
- Microtek Scanmaker V300 ..... $219

Visioneer

- PaperPort Vx w/FREE SCSI adapter $199

PRINTERS

EPSON Stylus Color 600

$299

E047 1034

EPSON

- Epson Stylus Color 600 ..... $299
- Epson Stylus Color 800 ..... $449
- Epson Stylus Photo $499
- Epson Stylus Color 3000 ..... $1999

APPLE

- Apple Stylewriter 4100 inkjet $239
- Apple Stylewriter 4500 inkjet $339
- Apple Stylewriter 6500 inkjet $469

HEWLETT PACKARD

- HP LaserJet 6MP $885
- HP DeskJet 870CXI $498

MODEMS

GLOBAL VILLAGE

- TelePort 33.6kbps Internet Edition $149
- Teleport 56K Fax/modem $199
- Teleport 56K Fax/modem w/X2 technology $199

BEST DATA

- 33.6FLXMAC Fax/Modem $79.95
- 56KMAC Fax/Modem $155.95
- 56KMAC Fax/Modem w/Voice $174.95

MEGAHERTZ

- Cruise Card, 33.6 w/ X-Jack, Cellular Ready $226

U.S. ROBOTICS

- 56k Sportster FAX/Modem w/X2 Technology $217

SOFTWARE

Photoshop 4.0

Upgrade for $129.75

Adobe A030 1001 40U

Adobe Photoshop 4.0

ADOBE

- Illustrator 7.0 full version $374.95
- Illustrator 7.0 CD upgrade $89.95
- Photoshop 4.0 full version $539.95
- Photoshop 4.0 upgrade $129.75
- PageMaker 6.5 full version Mac/PMac $539.95
- PageMaker 6.5 upgrade CD $89.95

APPLE

- System 7.6 upgrade w/AICK $69.95
- System 7.6 CD or Disk w/AICK $93.95
- Apple Remote Access Multiport Server $699.00

CLARIS

- FileMaker Pro 3.0 ..... $181.95
- FileMaker Pro 3.0 competitive upgrade $89.95

MACROMEDIA

- FreeHand 7 upgrade $138.00
- FreeHand 7 ..... $374.95
- Director 6 Multimedia Studio upgrade $499.000

MICROSOFT

- Office Standard 4.2.1 CD or Disk $449.95
- Office Standard 4.2.1 upgrade CD or Disk $265.95

SYMANTEC

- Norton Utilities 3.5 Upgrade $49.95*
- SAM 4.5 ..... $63.95
- Suitcase 3.0 ..... $64.85

*Price after $50 mail-in rebate

Contacting ClubMac

Sales and Customer Service 24 Hours a Day, 7 Days a Week	(800) 260-8549
Inquiries and International Sales M - F 5am - 9pm PST	(714) 768-8130
Corporate/Educational Sales M - F 5am - 5pm PST	(800) 258-2621
Technical Support M - F 5am - 9pm PST	(800) 854-6227
24-Hour Fax	(714) 768-9354
E-Mail: ClubMac Sales	cmsales@club-mac.com
Customer Service	custsvc@club-mac.com
Technical Support	techsup@club-mac.com
Mail: ClubMac	7 Hammond, Irvine, CA 92618

RDER ODAY!

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-260-8549

Order On-Line @ http://www.club-mac.com

Source Code 690997

ClubMac®

1-800-260-8549 1-800-260-8549 1-800-260-8549

WE HAVE THE

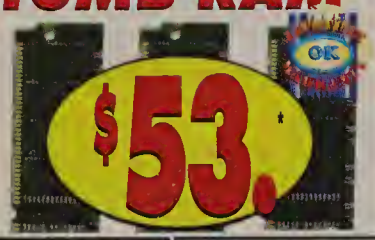
The Macintosh Authority
MacNet

We beat any price advertised in this magazine†
†(when merchandise advertised is actually available at a realistic price ,not part of a bundle and is Brand-New)(misprints are not valid)

WWW.applemacnet.com

Memory

Super Hot Deal
16MB RAM



$53.*

*Memory prices vary according to market conditions!!

SIMMS		DIMMS	
4MB	$19	8MB	$39
8MB	$29	16MB	$69
16MB	$53	32MB	$129
32MB	$119	64MB	$259

Power Mac 6500

Speed, Power and Unparalleled features!

- 225MHz
- 32MB RAM
- 3.0GB HD
- 12X CD
- 33.6 modem
- 256k l2 cache
- Internet access and navigation

Up to 300 MHz

$1,699.*

Monitor Sold separately!

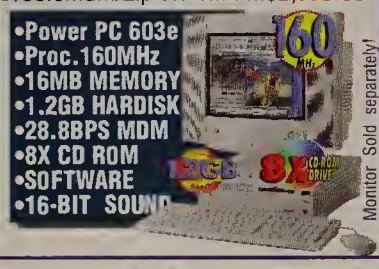
6500 250MHz/32MB/4GB/12XCD/33.6Mdm/Zip drive.....$2,099.00*
6500 250MHz/48MB/4GB/12XCD/33.6Mdm/Zip drive.....$2,428.00*
6500 275MHz/32MB/4GB/12XCD/33.6Modem/Avidcinema $2,759.00*
6500 300MHz/64MB/4GB/12XCD/33.6Mdm/Zip drive.....$2,779.00*

6360/160

$849.*

HURRY!

- Power PC 603e
- Proc.160MHz
- 16MB MEMORY
- 1.2GB HARDISK
- 28.8BPS MDM
- 8X CD ROM
- SOFTWARE
- 16-BIT SOUND



Monitor Sold separately!

Power Macs

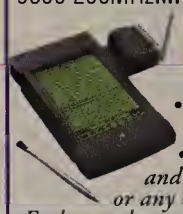
7300/180MHz

- Power PC 604e
- 16MB RAM
- 2.0GB HD
- 12XCD ROM
- 16-bit Sound
- Ethernet
- Keyboard

$1,799.*

Monitor Sold separately!

9500MP 180MHz/32MB/2.0GB/8xCD.....$2,899
4400 200MHz/16MB/2GB/8XCD.....$1,199
7300 200MHz/16MB/2GB/12XCD.....$2,099
8600 200MHz/32MB/2GB/ZIP Drive/12XCD/ 2MBVR.....$2,699
9600 200MHz/32MB/4GB/12XCD/ 4MBVR.....$3,199
9600 233MHz/32MB/4GB/12XCD/ 4MBVR.....$3,139
9600 200MHz**MP**/32MB/4GB/12XCD/4MBVR.....$4,259



weighs Only 2lb.

Apple Message Pad 2000

- 160Mhz RISC proc.
- 16-level Hi-resol. screen
- 2 PC Slots for memory and wireless modem or any other compatible card.
- Exchange data with Windows and Mac OS
- Built-in mic/speaker (optional keyboard).

$799

Monitors

Apple 15AV FOR ONLY $419.

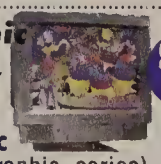
Apple
Multiscan 14".....$279.00
Multiscan 1705.....$629.00
Multiscan 1710.....$779.00
Multiscan 850 20".....$1,599.00
Multiscan 850AV 20".....$1,739.00

$635.

Sony 17" 200SX

Sony
100SX15".....$369.00
100Sf 15".....$429.00
200SX 17".....$635.00
200Sf 17".....$729.00
SF2 20".....$1,599.00
SE2 20".....$1,799.00

Viewsonic 17EA 17"AV



$589.

Viewsonic
15GS 15"(graphic series).....$342.00
15GA 15" AV(graphic series).....$369.00
17EA 17" AV.....$598.00
GT770 17"(graphic series).....$629.00
17PS 17"(Pro series).....$699.00
G800 20" (graphic series).....$1,059.00
P810 21"(Pro series).....$1,399.00

Printers

Stylewriter 2500

$259.

Apple
Color Stylewriter 1500.....$199.00
Color Stylewriter 2200.....$259.00
Laserwriter 12/660(color).....$5,399.00
Laserwriter 12/640.....$1,379.00
Epson
Stylus Photo (New).....$ 499.00
Stylus Color 600.....$289.00
Stylus Color 800.....$429.00
Stylus Color 1500.....$899.00
Stylus Color PRO XL.....$1,399.00

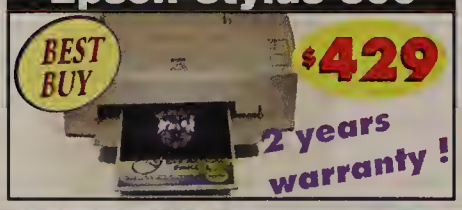
Epson Stylus 600

Color pack included!

$289

Epson Stylus 800

BEST BUY



$429

2 years warranty !

Modems

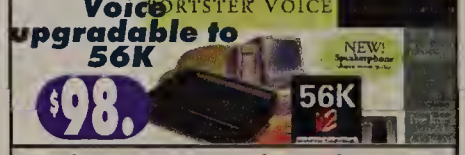
Supra 33.6

PRICE DROP

$89.

Farallon
Netopia™ 411 ISDN Modem.....$289.00
Netopia 440 Internet Router.....$899.00
Global Village
Teleport Speakerphone 33.6.....$149.00
Supra
*SupraSonic™ V34 33.6.....$169.00
Supra Fax Modem 288 33.6.....$149.00
U.S.Robotics
Sportster 33.6 Fax/Modem.....$139.00
Sportster33.6 PC card for Powerbks.....$189.00
Sportster 56K.....$199.00

Sportster Voice upgradable to 56K



$98.

Teleport Speakerphone

Voicemail ,Caller ID
Call sensing
Internet Access,
Microphone
Simultaneous voice and Data & more...
**call for details!

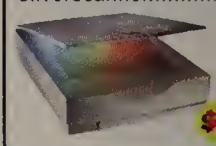
NOW $149.

Scanners

Umax Astra 60

Only $240

Apple
Apple ColorOne600/27 (sale).....$39
LaCie
silverscanner PRO.....$35
silverscanner.....$1,04



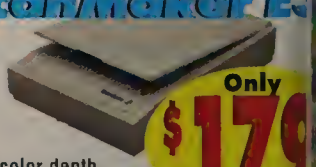
LaCie silverscanner PRO

$359

Umax
Vista S-12 (soho).....$4
Power Look 2000 (transp. adapt.)...$2,6
Power Look II(Photoshop full).....$1,29

MICROTEK
Better Images Through Innovation

ScanMaker E3



Only $179

- 24-bit color depth
- Single-pass speed
- 300x600 dpi optical resolution
- 2400 dpi maximum resolution interpolated
- ScanWizard™ scanner controller software
- Software for Mac OS, Windows®95,NT,3.
- Image-editing software / OCR software for scanning text. - All Software on CD-ROM!

Products

LACIE LIMITED

Catch the CD-R Wave!
- For large file transfers, or mass distribution of media(sound&image).
- Comes w/ Toast Pro software (a super value).

2X REC/6X Play Recordable CD-Drive

SALE PRICE Only $389.

HARD DRIVES

Capacity	Int.	Ext.
2.1 GB	$399	$359
2.1 GB AV	$329	$389
3.1 GB	$379	$439
4.3 GB AV	$559	$619
4.5 GB AV	$829	$899
9.0 GB AV	$1,359	$1,459

BEST BUY

8X CD-RO ONLY $17

CALL 1-800-404-9976

FedEx

Schools & Corp. P.O.s are Welcome E-mail:Sales@applemacnet.com E-mail:Support@applemacnet.com *When ordered w/ StyleWriter 1500 printer! McNet is not responsible for typos!
ALL PRICES ARE CASH DISCOUNTED. Prices & product availability subject to change without notice - Any merchandise returned is subject to a restocking fee! When returning, call for a RMA# first!Thank You!

BEST DEALS!

Ask for our lease and financing plans for businesses! as low as $69 per month

PowerBooks

1400cs

MHz
erPC 603e
B Memory
MB HD
D-ROM
IT Sound
ophone

117 MHz

As low as

6X CD-ROM DRIVE

$1,749.*

3400

180 MHz

- 180MHz
- Power PC 603e
- 16MB Memory
- 6XCD-ROM
- 1.3GB Hard Disk
- 16-BIT Sound
- microphone

6X CD-ROM DRIVE

$3,199.*

erBook1400c/133MHz16M/1.0GB
/11.3" Matrix Display.....$2,899.*
erBook3400c/200MHz16MB/2GB/6XCD
" Matrix Display.....$4,199.*
erBook3400c/240MHz16M/2GB
/11.3"Matrix Display.....$5,399.*

Apple Servers

7250

- 16MB/2.0GB/8XCD
- 1MB VRAM/ 256k L2 Cache
- Ethernet AAUI & 10base T
- More than $4000 in bundled Software.

$1,499.*

monitor & keyboard sold separately!

Group Server Solution
MHZ/48MB/4GB/12xCD.....$2,672*
MHZ/64MB/8GB/12xCD.....$5,713*
et Server Solution
MHZ/16MB/2.0GB/8xCD.....$1,936*
MHZ/32MB/2.0GB/8xCD.....$3,699*
Share Server Solution
MHZ/16MB/2.0GB/8xCD.....$2,304*
MHZ/32MB/2.0GB/8xCD.....$5,299*

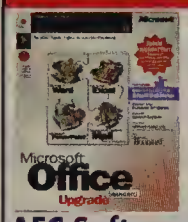
Adobe After Effects

be After Effects 3.0 Reg.Price $599

Now $199.† $400

Software

Business



Microsoft Office 4.2.1 Upgrade $199.

AEC Software
Fast Track Schedule 5.0.....$109.
Atlas Business Solutions
Visual Staff Scheduler Pro 3.0.....$599.
BestWare
MYOB accounting 7 .....$89.
Computhink
The Paperless Office.....$119.
Comstar Concepts
Wall Street Investor.....$119.
Decisioneering
Analytica (full version).....$699.
Intuit
Quicken 7/Wall Street Investor Bundle.....$139.
Main Event Soft.
Scripter 2.0 (full version).....$179.
Microsoft
Microsoft Office 4.2.1 (full version).....$299.
Office 4.2.1 (upgrade).....$199.
Microsoft Word 6.0.1 (full version).....$269.
Microsoft Excel 5.0 (full version).....$269.
Microsoft Excel 5.0 (upgrade).....$119.
New Perpective Software
Order Master.....$135.
Now Software
Now Contact and Up-to-Date 3.6.5.....$94.
Screenplay System
Movie Magic Budgeting.....$459.
Movie Magic Scheduling.....$450.
SkyMark
PathMaker.....$359.
PowerSoft
PowerBuilder 5.0(database tool to handle SQL in most environments *MAC,UNIX, Windows NT*.....$2,799.
Timeslips
Timeslips 4.0.....$279.

Design / Graphics

Adobe Photoshop 4.0 Upgrade $139.

Adobe Photoshop 4.0

Adobe Systems
PageMaker 6.5 (full version).....$399.
PageMaker 6.5 (upgrade).....$96.
Photoshop 4.0 (full version).....$399.
Photoshop 4.0 (upgrade).....$139.
Illustrator 7.0 (full version).....$349.
Illustrator 7.0 (upgrade).....$89.
Dimensions 3.0 (full version).....$129.
Streamline 4.0 (full version).....$129.
Artifice
Design Workshop 1.5.....$569.
Astound
Astound 3.0.....$126.
Avian System
Full Pixel Search 2.0.....$264.
Chroma Graphics
Chromatica (full version).....$139.
Deneba
Canvas 5.0 (design & illustration).....$379.
Engineered Software
Power CADD 3.0 (pro-level draft-prog.).$699.
Fractal Design
Detailer (Paints 3D models).....$419.
Expression 1.0 (object-oriented drawing)....$419.
Painter 5.0 (full version).....$269.
Painter 5.0 (upgrade).....$89.
Poser2.0 (human-models in 3D).....$229.
Graphsoft
MiniCad 6.0.....$529.
BluePrint 5.....$209.
ImageXpress
ScanPrepPro 3.1 (automates image-process.$639.
IMSI
Turbo CAD 2D/3D 3.0 (semi-pro CAD soft).....$129.
Macromedia
Director 6 multimedia studio (full version).....$899.
Director 6 multimedia studio (upgrade).....$449.
Director 6 (full version).....$749.
Director 6 (upgrade).....$359.
Extreme 3D 2.0 (3D-design,print,animation)....$349.

†When ordered w/ any $100 or more worth software or computer w/ video capabilities! *After manufacturer's rebate!

FreeHand 7 - graphics studio

Upgrade $195.

Full Version $299

Free Hand V7.0 (full version).....$199.
Free Hand V7.0 (upgrade).....$135.
SoundEdit 16 2 (full version).....$269.
xRes 3 (image editor)(full version).....$269.
Fontographer(full version).....$299.

Quark Xpress

V3.32

The Best price in the Market!

$619.

Quark
QuarkXpress 3.3.2 (publishing).....$619.
Specular
Infini-D 3.5 (3D/Animation/modeler).....$399.
Infini-D 3.5 (competitive upgrade).....$229.
Infini-D 3.5 (upgrade).....$89.
Collage 2.0 CD.....$89.

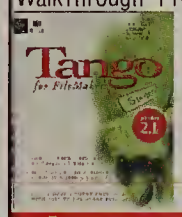
Expert 2D drafting and 3D modeling

$529.

MiniCad 6 MACINTOSH WINDOWS

The complete and easy to use CAD package!

Virtus
WalkThrough Pro 2.6 .....$399.

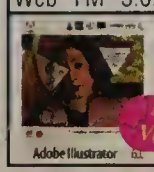


The full-featured visual development tool for your Web pages !

$319.

Internet / Database

Adobe
Page Mill 2.0 (Webpage builder).....$99.
Blue World Comm.
Lasso 1.1 (put filemaker data on the web) $259.
Claris
FileMaker Pro 3.0.....$159.
FileMaker Pro 3.0 (upgrade).....$96.
Claris Home Page.....$94.
Claris Works Internet Edition (includes Claris homepage & Apple internet connection kit)....$99.
Darmouth College
Inter Mapper 1.0.....$729.
Extensis
CyberPress 1.0 (QuarkXpress-to-HTML)..$139.
Farallon Communications
Timbuktu Pro 3.0.....$125.
Net Objects
Net Objects fusion 1.1(Website builder).$449.
On Base Technology
DragNet 1.1.4 (URL manager).....$479.
RUN
RunShare 2.1(AppleTalk network 2-users)$289.
SoftArc
First Class 3.5 (complete e-mail manager).$449.
StarNine tech.
Quarter Deck Mail 4.0 (Mail server)...$299.
Quarter Deck Mail 4.0 (5-user pack)...$199.
WebStar 2.0 (free Page Mill).....$399.
Symantec
Symantec Visual café.....$194.
Symantec Visual Page.....$94.
Virtus
3D Website builder (VRML authoring).....$139.
Web Broadcasting
Web FM 3.0.....$189.



Adobe Illustrator 7 Upgrade from V.5.0 or later $89.

New Version ONLY

Effects/Plug-ins/Media

Adobe Premiere 4.0

Now $149.† bundle version!

†When ordered w/ any $100 +worth software or computer w/ video capabilities!

Adobe
Persuasion 4.0 (full version).....$299.
Allegiant Tech
SuperCard 3.0 (authoring tool w/ web plug-in)..$299.
Artel Software
Boris Effects 2.1 MP (Adobe plug-in).....$499.
DigiEffects
Aurorix 2.0 (full version).....$249.
Berserk 1.3 (full version).....$249.
Cyclonist 1.0 (particle-generation soft.).....$429.
Extensis
QX-Tools 2.0 (Xtensions-collection).....$94.
Knoll soft.
Lens Flare Pack 1.5 (after effects plug-in)...$139.
MetaTools
Bryce 2.....$168.
Final Effects AP 1.0 (particle-generation).$189.
KPT Final Effects 3.0.1 (effects collection)..$659.
Studio Effects 1.0 (3D particle-generator.$659.
mFactory
mTropolis 1.1 (authoring tool).....$1099.
M.M.M. Soft.
HoloDozo 1.0 (Adobe Premiere plug-in)..$129.
NewTek
LightWave 3D 5.0 (Pro-Level animation)...$1299.
Pixélan Soft
Video SpiceRack 1.0.....$159.
Terran Interative
Movie Cleaner Pro 1.2.1 (movie-compression).$339.
XaosTools
TypeCaster 2.0 (3D text-plug-in).....$169.

Free!* *AVID VideoShop When ordering $100 or more worth of software!*

*While supplies last!

Utilities/Programming

Abbott Systems
CanOpener 3.5 (file recovery utility).....$59.
Apple Computer
MAE 3.0 (Mac-in-the-Box for Unix workstations $399.
MAC OS 7.6 (Macintosh operat. system)..... $69.
The MathWorks
MATLAB Wavelet ToolBox 1.0 .....$805.
Caere
Omni Page Pro 7 (OCR soft. pack).....$439.
Canto Soft.
Cumulus Desktop 3.0 (multimedia utility)....$99.
Casady & Greene
InfoGenie 2.0 (info manager).....$74.
Connectix
Speed doubler 2.0.1. (file transfer utility).....$89.
Datawatch
Virex 5.7 (great features in virus-detection)..$67.
Fog City
Letter rip 1.0.2. (Mailing-list server).....$249.
Investment Intelligence
Wingz 2.1.1 (powerful programming tool).$369.
Metrowerks
Code Warrior 10 gold(programming).....$339.
Nisus
QUED/M 3.0.1 (editor for programmers).....$99.
Now soft.
Now utilities 6.7.....$85.
Now start-up manager 7.5 .....$57.
Optical media
Audio Tracer 1.0 (CD-R mastering).....$94.
Starnine tech
ListStar 1.1 (mailing-list management).....$429.
Symantec
SAM 4.5 (virus protection).....$49.*

Others

Binuscan color pro.....$399.
Corel Draw Suite 6-CD.....$199.
Debabelizer.....$229.
Delta Graph 4.0.....$135.
Delta Graph 4.0 (upgrade).....$76.
Live Picture XT.....$138.
XTen 6.0.1 (X server).....$279.
SoftWindows 95 v.4.0.....$299.
GoLive Cyber Studio(Web Site des./build.)..$299.

MacConnection®

The Original Macintosh Mail-Order Source–Since 1984!

Order as late as 3 a.m. ET and *still* get Overnight Delivery!

Get the Best for Less!

UPGRADE!

New 7.0!
FREE Etch-a-Sketch!
FREE Photodisc Vol. 12!
Adobe Illustrator 7.0
Upgrade Only $94.95 40272

Painter 5
100 New Brush Strokes!
Save $49.95 when you purchase with Photoshop! 40268
Upgrade Only $99.95

New Version!
Exclusive! Get FREE PhotoDisc 16 and Shocking the Web with purchase!
macromedia DIRECTOR 6 MULTIMEDIA STUDIO
Upgrade Only $479.95 38640

New Version!
Exclusive! Get Fractal Painter 5 for ONLY $99.95 with Photoshop 4.0 Purchase! Save $200!
Adobe Photoshop 4.0
Upgrade Only $169.95 42795

SUPER BUNDLE!
"Build Your Own Web Page"

SAVE $90!* *After rebate

Claris Home Page 2.0 — Build Dynamic Web Pages in Minutes

Kodak DC20 Digital Camera

- Kodak pocket-sized DC20 digital color camera
- Claris HomePage 2.0
- 10-Pack Iomega Zip Disks

Kodak digital science

Only $359** **After $20 mail-in Iomega rebate 40948

Major New Upgrade Mac OS 8

Order your copy today and get Virtual Pool Game FREE!

Mac OS 8 — Upgrade Only $69 42198

Palm Pilot Personal
The Best Selling PDA Just Got Better!

Includes organizer applications and desktop software

Synchronizes with your Mac!

Only $289.95 3915

Peripherals!

Connectix
Run hundreds of PC apps on your Mac! Comes complete with installation CD-ROM & manual, plus Windows 95 or 3.1 CD-ROM & manual.
Get a PC Game, Hooves of Thunder, FREE w/purchase
Only $147.95 42673

Fastest Modem Ever! U.S. Robotics
Sportster 56K Faxmodem!
$50 Rebate!
Only $169.95* 37317
*After $50 cash back from U.S. Robotics. Offer expires 10/4/97

VISIONEER Strobe
Only $329
Now with 24-bit color! Never fades! Newest scanning technology creates sharper images! 40456

Stylus 600 Color!
1440 x 720 dpi
PLUS!
FREE Adobe PhotoDeluxe!
FREE Adobe Publisher!
Funtastic Fonts & More!
Only $299 37819
EPSON

NEW! Dayna NETCENTER
Total Cross-Platform Connectivity Solution!
- Plug N Play
- Easy Network Expansion

Starting At $69.95 42472

100MB Zip Disk 20-Pack with 4 FREE!
Only $285 40425
Zip 4 FREE Zip disks
FUJI
As Low As $11.88 per disk!

MAXpowr 180MHz 604e Power PC Upgrade
newer tech
Single and dual processors available!
*After $150 Mail-in rebate. Limited time offer.
Only $449.95* 31788

Microsoft FrontPage 1.0 & Pantone Color Web
ColorWeb
Create and manage your Internet or intranet Web Sites the fast and easy way & display them in the colors you intend!
Both Products $107.95* 39
*After $40 rebate to owners of Microsoft products or competitive Web page products.

MacClass 33.6Kbps PC Card with EZport
Go online...in the office or on the road! Fast and easy installation!
33107
Only $129.95*
PRACTICAL PERIPHERALS.
*After $20 mail-in rebate Exp. 12/31/97

Apple Newton MessagePad 2000
As powerful as a high-end desktop!
Shown with optional keyboard
Only $949 36376

Breathe New Life Into Your PowerBook!
RoadRunner 1GB Internal IDE Hard Drive
New Low Price!
Only $359 39581
MICROTECH

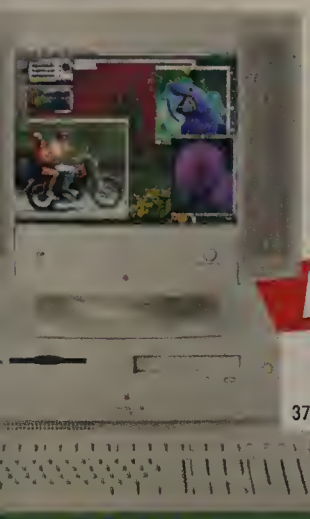
BCS — MacConnection was awarded "Best All Around Company" for the second year in a row by The Boston Computer Society!

BMUG — The highly regarded Berkeley Mac User Group (BMUG) named MacConnection the Best Mac Mail-Order Company.

OUR POLICY • VISA, MASTERCARD, AMERICAN EXPRESS, and NOVUS cards: No surcharge. • Most products are covered by manufacturer's warranty against defects for at least 30 days from the invoice date. • All returns require prior authorization; please call for an RMA • We are [illegible] • Pricing and promotions are subject to change without notice. Continental U.S.: Shipping Charges: $5 per order up to 10 pounds. On orders weighing 10 pounds or more, shipping is $1 per pound. Please call for weight/shipping charge information. [illegible] may require additional days to deliver via a freight carrier. Please check with your sales rep for more details. Barring events beyond our control, all credit card orders phoned in weekdays by 3 a.m. ET will ship Airborne Express for delivery the next business day. [illegible] upon request at no additional charge. Order all day Saturday thru noon Sunday for Monday delivery. Some areas require an extra day delivery. APO/FPO, International orders and Hawaii, Alaska, Canada, Puerto Rico & U.S. Virgin Islands may require additional charges. All other areas: Call 603-446-4444 or FAX 603-446-7791 M-F 9 a.m.-5:30 p.m. ET. ©1997 PC Connection, Inc., Marlow, NH. MacConnection & the raccoon characters are registered trademarks of PC Connection, Inc. All other trademarks remain the property of their respective companies.

Apple Power Mac 4400

The Home Office & Small Business Choice!



Authorized Catalog Reseller

Monitor sold separately

- 200MHz
- 16MB EDO DRAM
- 2GB Hard Drive
- 8X CD-ROM Drive
- 2MB EDO VRAM (exp. to 4MB)

New LOW Price!

As Low As $1499!

37860

Ultimate Affordability!

UMAX C500 Limited Edition

- 140MHz 603e Processor
- 16MB RAM
- 8X CD-ROM
- 1.2GB Hard Drive
- 1MB VRAM

Monitor sold separately

ONLY $849*!

40533

*Now thru August 31, 1997, get an Instant Rebate from MacConnection on UMAX C500Le. Reg. $895, now only $849! While Supplies Last!

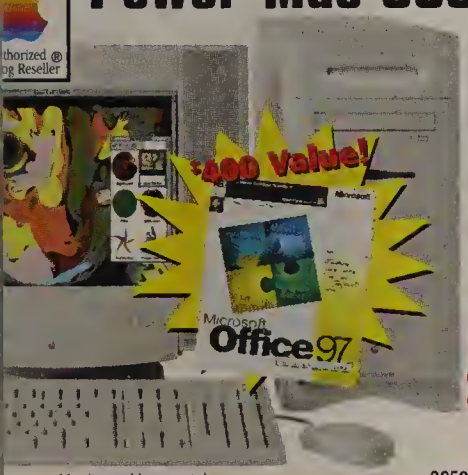
Instant Rebate! plus FREE Software, Keyboard, Mouse!

THE BEST PRICES ON MAC SYSTEMS!

Hours day!

00-800-MACs

Power Mac 6500 Series



Monitor sold separately

39506

Small Business Solution

- Up to 300MHz
- 64MB RAM
- 4GB Hard Drive
- 33.6 Faxmodem
- 12X CD-ROM
- Optional Int. Zip Drive

$2999 (40916 Shown)

6500's Start At $1999

SAVE ask about... **LEASING OPTIONS for BUSINESS** CALL FOR DETAILS

NEW! Extended Service Plan

Supplement the mfr.'s warranty for 4 full years from date of purchase!

Fastest PowerBook Ever!

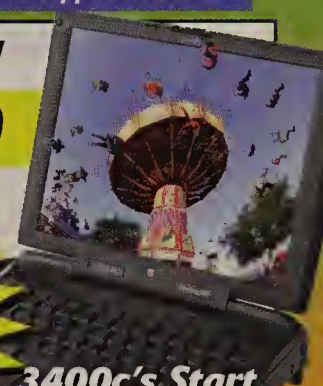
PowerBook 3400

Desktop power and speed...portable convenience!

- 240MHz
- 16MB RAM
- 3GB Hard Drive
- 12X CD-ROM
- 256K L2 Cache
- 12.1" Active Matrix
- 33.6 Modem w/10T Ethernet

$5999 (42099 Shown)

FREE Visioneer Strobe with any PB 3400



3400c's Start At Only $4499

41446

Authorized Catalog Reseller

Software!

ss
- 56 allClear $179.95
- 05 ClarisWorks Office for Mac 99
- 80 Incorporate 68.95
- 33 Quicken Deluxe 7.0 ..... 59.95
- 19 Visio Pro 329.95

nment
- 88 ClarisWorks for Kids 49
- 29 Mavis Teaches Typing 5.0 ..... 39.95
- 63 Mech Warrior 49.95
- 07 Monopoly 29.95
- 77 Tie Fighter Collection 29.95

cs & Design
- 41 Adobe Illustrator 7 Version Upgrade 94.95
- 23 Adobe Photoshop Version Upgrade 134.95
- 35 DeBabelizer Toolbox w/ FREE DeBabelizer the Authorized Edition Book 249.95
- 01 Eye Candy 3.0 Power Mac (CD) 119.95
- 68 Fractal Painter 5 Mac Version Upgrade 99.95
- 86 Fusion 2.0 for Mac 489.95
- 58 Intellihance 3.0 ..... 94.95
- 55 Mask Pro 1.0 ..... 289.95
- 02 Portfolio 3.0 ..... 94.95
- 69 QuarkXPress Mac 649.95

ing Systems
- 98 Mac OS 8 Upgrade 69

- 33 Conflict Catcher 4.0 ..... 64.95
- 13 Oil Change 34.95
- 33 Spring Cleaning 49.95
- 20 Stuffit Deluxe 72.95
- 64 Symantec Antivirus Mac (SAM) 69.95
- 73 Virtual PC w/ FREE Mech Warrior II 147.95

Peripherals!

Accessories
- 39536 Kensington Orbit $69.95
- 32497 Masterlock Notebook Security Cable 39.95
- 25696 Mouse in the Box 39.95
- 33990 Solar Panel Mercury II 299.95

CD-ROM
- 38334 Hi-Val 8X/4-Disc CD-ROM Changer 249.95
- 38365 La Cie External 2 x 6CD-R Drive w/ Toast 399
- 39099 MDS 16X SCSI CD-ROM 249.95
- 41378 Pinnacle Micro RCDW226 External Rewriteable CD-R Drive 799

Digital Cameras
- 39582 Kodak DC120 Digital Zoom 989
- 38573 Ricoh RDC-2E Digital Camera 599.95

Graphics/Video Cards & Accelerators
- 34427 ATI MacXclaim VR2 ..... 229.95
- 40281 Imagine 128 Ser2 8M PCI 799.95
- 37869 IMS Turbo TV PC & Mac TV Card 139
- 37548 MAXpowr 225MHz Processor Upgrade 1149
- 35568 Radius Thunder 3D 2799

Monitors
- 28602 Hitachi MC20 20" 1399
- 38305 Mag Innovision 710V2 17" 499
- 32695 Mag Innovision DX700T 17" 699
- 36276 Mitsubishi 91 TXM 21" 1549
- 39386 ViewSonic Optiquest Q53 15" 299.95

Storage
- 40425 Fuji Zip Disk 20-Pack w/4 FREE Disks (only $10/disk) ... 240
- 39581 Microtech RoadRunner 1GB IDE PowerBook Replacement Hard Drive 359
- 32815 SyJet 1.5GB Cartridge 124.95
- 32816 SyJet 1.5GB Cartridge 3-Pack 299.95
- 32593 SyJet 1.5GB SCSI Drive (Internal) 399
- 32595 SyJet 1.5GB SCSI Drive (External) 499

SUPER LOW SIMMS!

PER MB as low as $4.99 PER MB!

4MB	8MB	16MB	32MB
as low as $24.98	as low as $39.95	as low as $79.95	as low as $169.95

MetaTools NEW!

Fix bad photos with the whisk of a brush! Works with digital cameras, scanners, and photo CD! Includes ready-to-use clip-art and backgrounds!

ONLY $49.95

39385

FREE! Catalog Subscription!

CALL TODAY!

☐ MacConnection ☐ PC Connection

Please check the catalog(s) you wish to receive

(Mention source code 997MW)

Name _____

Address _____ Apt ____

City _____ State _____ Zip ____

10,000 HOT PRODUCTS 24 HRS A DAY!

888-800-4504

www.macconnection.com

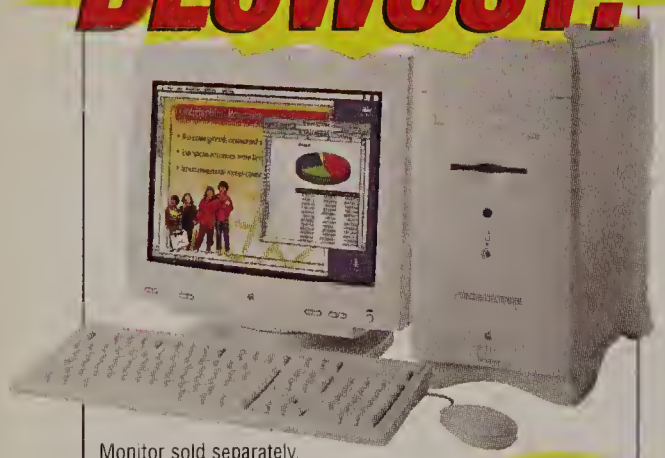
Now shop online with a name you can trust!

Macworld 997MW

Your Macintosh® Catalog SuperStore™

PROUDLY SERVING MAC USERS SINCE 1986

BLOWOUT!



Monitor sold separately.

Power-packed multimedia machine!

ONLY $999 #85441

Limited to stock on hand.

Performa 6400/180

- 180MHz PowerPC™ 603e processor
- 16MB RAM, upgradable to 136MB
- 1.6GB hard drive
- 28.8 Kbps modem
- Internal 8X CD-ROM drive

Authorized Catalog Reseller

The Apple® Macintosh® Performa® 6400 has enough power to run today's applications, plus the multimedia to make them exciting, including integrated subwoofer and SRS™ 3D Surround Sound. It's a value that's too good to pass up!

#85442 Performa 6400/200 . . . . . .**$1199.00**

ONLY $249.98 #87135

Jaw-dropping image quality and proven StyleWriter reliability!

Apple® Color StyleWriter® 2500

- Apple's highest quality inkjet printer
- 5 ppm black & white/.66 ppm color
- 720x360 dpi resolution for color images and black and white text
- Automatic ink saturation adjustment for optimum print quality on all media
- ColorSync technology improves color matching from screen to printer
- EtherTalk and LocalTalk networking modules available
- Includes 64 TrueType fonts

Authorized Catalog Reseller

#87136 StyleWriter 1500 . .**$209.98**

ONLY $895 #78223

SuperMac innovation for a super-low Mac Zone price!

SuperMac C500L/140 Desktop

- Upgradable 140MHz PowerPC™ 603e processor
- 16MB RAM, expandable to 144MB
- Spacious 1.2GB hard drive
- 8X CD-ROM drive
- CD-quality Surround Sound
- 1MB VRAM
- Two high-speed serial ports
- Generous, pre-loaded software bundle
- One-year, on-site, parts and labor warranty

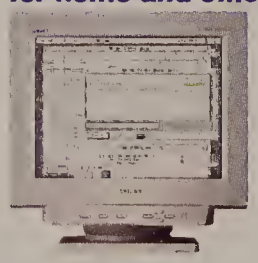
The latest drawing NEWs from Adobe!

ONLY $89.88 #88205

Adobe Illustrator 7.0 Upgrade

Illustrator 7.0 provides unmatched flexibility, productivity and control, whether you're drawing for print, multimedia or the Web.

The value-priced display for home and office



ONLY $259.88 #43948

Sony MultiScan 15sx1 Reconditioned (13.1" viewable)

#43949 Sony MultiScan 17sfII 17" Reconditioned (16" viewable) **$539.98**

Manage your business relationships more productively

Symantec Act! 2.8 Version Upgrade

ONLY $48.99 #06979

Paper to screen in seconds!

ONLY $329.88 #77102

Visioneer PaperPort Strobe Color Scanner

MEMORY UPGRADE

As Low As $6.98 PER MB

CALL NOW!

Extraordinary modem speed over ordinary phone lines!

ONLY $204.88 #78024

Global Village Teleport 56K x2 Faxmodem

FREE Internet For Mac for Dummies included!
While supplies last.

Unlimited personal storage with 1GB cartridges!

iomega

Jaz® Drive

1GB cartridge included!
with tools & utilities

ONLY $399.95 #25659

The most affordable and portable storage solution

ONLY $149.95 #91825

Zip™ Drive

100MB cartridge included!
with tools & utilities

Add applicable sales tax (only in OH, NV and WA). Orders placed before 11 p.m. ET for items in stock will be shipped the same day (barring system failure, etc.). Shipping options include Ground, 2nd Day and Overnight delivery. Freight is based on average product weight. Handling extra. Insurance available. Credit cards are not charged until the order is shipped. Not responsible for typographical errors. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand.

*Dana Commercial Credit Corp. Business Lease 36-month, full-payout lease with a $1 purchase option based on approved credit. Other leasing options available. Call for full details.

Circle 71 on your reader service card

Ordering from The Mac Zone is Easy!

VISIT us @ www.maczone.com
FAX your order to 425.430.3500
CALL US TOLL-FREE!
1·800·436·0606

Authorized Catalog Reseller

We Carry the Full Line of Apple® Macintosh Computers

- Over 6000 Products to Choose From!
- Cool Bundles and Hot Specials!
- Low Prices Everyday!
- Overnight Delivery only $3 (up to 2 lbs)

we're open 24 hours a day 7 days a week

Complete Solutions
FOR GRAPHICS PROFESSIONALS

NEW!

Sets a new standard in ease of use and Internet access for fast, flexible operation!

CLARIS®

Mac OS 7.6 to 8 Upgrade

- Multitasking Finder saves you time on installation and basic desktop functions
- Live scrolling provides greater control over your page
- Automatically launch your browser and visit your favorite Web site in a single click by using the "Connect To" shortcut in the Apple menu
- Advanced Internet features also include multiple Web browsers, native Java support, Personal Web Sharing, and the push technology of PointCast and Marimba
- PLUS a new 3D interface, pop-up menus, interactive setup assistants, the latest QuickTime Media Layer technologies and more!

Mac OS 8 is here! The long-awaited version of the Macintosh operating system sets a new standard for ease of use and offers you the quickest ways to ever connect to the Internet. Immediately feel how ultra-responsive Mac OS 8 is as you work – from multitasking to its built-in Internet access, you save time at every step. Plus, there are dozens of innovative, new ways to heighten productivity. The result is an entirely new Mac OS user experience that's easier, faster and more flexible than ever before. Best of all, Mac OS 8 is fully backwards compatible with all Mac OS systems running System 7.0 or higher. See what a difference 8 makes! Call The Mac Zone now to upgrade!

#75302 Mac OS 8 Upgrade from any previous version $99.98

This ounce of prepress prevention is worth a ton of printing cure!

Extensis Flight Pro

ONLY $398.88 #77427

Two painting tools for one low price!

Painter 5 Full Version and Wacom Art Pad (4x5) **SAVE $148.99!**

ONLY $298.88 #77640

Puts 3 major design functions in one place!

ONLY $149.88 #16203

Deneba Canvas 5 Upgrade

See it all, even with a smaller footprint!

RasterOps Mc7515 19" Monitor (18" viewable)

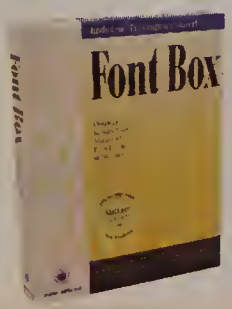
ONLY $1199 #80700

A generation ahead in image distortion

ONLY $98.88 #77067

Squizz

"Font Box is the best font organization and maintenance utility tool available" – Macworld, Nov. 1996



ONLY $74.88 #77960

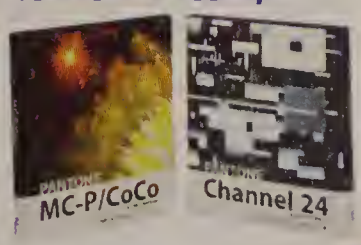
Font Box 2.1 Standard

Perfect print output with this thorough prepress check!

FLIGHTCHECK

ONLY $394.88 #82529

Powerful color correction tools for Photoshop



PANTONE MC-P/ CoCo & Channel 24

ONLY $349.88 #77615

Corporate Sales 1-800-258-0882 | **Government Sales** 1-800-372-9663 | **Education Sales** 1-800-381-9663 | **International Sales** 1-425-430-3570

A NASDAQ® COMPANY Ticker Symbol: MZON

Copyright © 1997 • The Mac Zone ® is a registered trademark of Multiple Zones International, Inc. All rights reserved.

THE MAC ZONE • TRUSTED INTERNATIONALLY

Australia • Austria • Belgium • Brazil • Central America • Chile • Colombia • Denmark • France • Germany • Holland • Hong Kong • Indonesia • India • Israel • Italy • Japan • Kenya • Mexico • New Zealand • Poland • Portugal • Singapore/Malaysia • Spain • Sweden • Switzerland • UAE/Middle East • United Kingdom • Venezuela

SOURCE CODE MW709

Circle 71 on reader service card

M•POWER 604e200 As Low As $1149!!

MacUser LABS 365 · MacUser LABS 282 · MacUser LABS

Visit Our Online BYOB Configurator at http://www.apstech.com/aps-byob.html

♦♦♦♦ MacWEEK

Built to your Specifications!

M•POWER 604e200

Includes:
- Floppy Drive
- 2-Year Limited Warranty

Mini-Tower Model

AS LOW AS $1149

- Three 5.25" Internal Bays
- Four 3.5" One-inch High Int. Bays
- Five PCI Expansion Slots

M•POWER 603e200

Includes:
- Floppy Drive
- 2-Year Limited Warranty

Desktop Model

AS LOW AS $699

- Two 5.25" Internal Bays
- Two 3.5" Internal Bays
- Three PCI Expansion Slots

(Mini-Tower Model also available)

*** to build your dream system, simply add the following components to our base models. Add as many as your system can handle, or don't add any. It's up to you!**

DRIVE OPTIONS

Removable Drives

16X CD-ROM ATAPI	$100
16X CD-ROM SCSI	150
CD-R 2X6 SCSI	449
Zip SCSI	149
230MB MO	290
Jaz SCSI w/one cart.	299
HyperDAT SCSI	749
HyperDAT Pro	849

Hard Drives

2GB SCSI Quantum	$275
2.5GB IDE Quantum	159
3GB IDE Quantum	250
3GB SCSI Quantum	350
4GB SCSI WD	750
4GB SCSI Quantum	430
6GB SCSI Quantum	550
9GB SCSI Quantum	1290
9GB Wide Quantum	1340

RAID

6GB/12GB 5400rpm	$1599.95
4GB/8GB 7200rpm	1999.95
9GB/18GB 7200rpm	2999.95

MEMORY OPTIONS

RAM

16MB DRAM	$99
32MB DRAM	200
64MB DRAM	389
1MB VRAM (EDO)	50
2MB VRAM (EDO)	99
4MB VRAM (SGRAM)	150

CACHE

256K L2	$51
512K L2	124

Accessories

Keyboard/Mouse	$50

CALL FOR OUR LATEST

FREE

APS CATALOG

Or visit our Online Catalog at http://www.apstech.com/catalog

IT PAYS TO COMPARE!

	M•POWER 604e200	POWER MAC 7300/200
Processor	✔ 604e, 200MHz	✔ 604e, 200MHz
Hard Drive	✔ 2.5GB	2GB
Internal CD-Rom	✔ 16X	12X
RAM	✔ 32MB	✔ 32MB
Cache	✔ 512K level 2	256K level 2
VRAM	✔ 2MB	✔ 2MB
Monitor	✔ 15" Philips/Magnavox display	None
FREE Software	✔ Yes ($1000)	Limited
Warranty	✔ 2 yr. limited	1 yr. limited
Price	✔ $2,271	$2,399

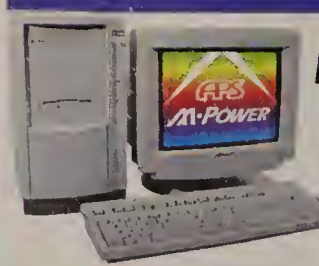
Power Mac information taken from the MacWarehouse Web Site 6/19/97

Software Included FREE with APS M•POWER Systems

$1000 Value!

- Claris Works®
- Claris Home Page®
- Nisus® Writer 4.1
- DiskFit Direct™
- Web Arranger 30-day trial
- AOL™ Software
- Claris Organizer™
- Macintosh System 7.6 or late
- PowerMerge LE
- QuickMail™ Express
- QuicKeys 30-day trial
- Bare Bones Software Goodie

Fantastic Deals on Pre-configured Systems



M•POWER 604e200 includes 15" Monitor!

- Tower enclosure
- 2.5GB EIDE Hard Drive
- 2MB VRAM
- Keyboard / Mouse
- 16X CD-ROM
- 32MB DRAM
- 512K L2 cache
- 15" Philips/Magnavox display

$2180

M•POWER 603e200

- Desktop enclosure
- 2.5GB EIDE Hard Drive
- 1MB VRAM
- Keyboard/Mouse
- 12x CD-ROM
- 16MB DRAM
- 256K L2 cache

Monitor not include

$1199

APS TECHNOLOGIES®

Call 800-289-5385 • 24 Hrs x 7 Days a Week

APS Technologies: The Storage Source!

APS HIGH-PERFORMANCE ULTRA SCSI DRIVES

el	Description	Int.	SR 2000	APS Pro
Q 2000	Quantum Fireball Stratus, 2079MB, 5400 rpm	$299.95	$369.95	$399.95
Q 3000	Quantum Fireball Stratus, 3118MB, 5400 rpm	359.95	429.95	459.95
Q 4000	Quantum Fireball Stratus, 4136MB, 5400 rpm	449.95	519.95	549.95
Q 6400	Quantum Fireball Stratus, 6236MB, 5400 rpm	579.95	649.95	679.95
Q 4500	Quantum Viking, 4345MB, 7200 rpm	699.95	769.95	799.95
Q 4300	Quantum Atlas II, 4341MB, 7200 rpm	779.95	849.95	879.95
ST 4300	Seagate Barracuda, 4148MB, 7200 rpm	N/A	899.95	929.95
ST 4500	Seagate Cheetah, 4348MB, 10000 rpm	N/A	N/A	1199.95
Q 9000	Quantum Atlas II, 8682MB, 7200 rpm	1299.95	1369.95	1399.95
ST 9000	Seagate Barracuda, 8600MB, 7200 rpm	N/A	1499.95	1529.95
ST 9100	Seagate Cheetah, 9000MB, 10000 rpm	N/A	N/A	1949.95
ST 23000	Seagate Elite, 22100MB, 5400 rpm	N/A	N/A	3199.95*

able in full height enclosure only.

APS ULTRA WIDE SCSI DRIVES*

el	Description	Int.	SR 2000	APS Pro
Q 4300 W	Quantum Atlas II, 4341MB, 7200 rpm	$829.95	$899.95	$929.95
Q 4500 W	Quantum Viking, 4345MB, 7200 rpm	749.95	819.95	849.95
ST 4300 W	Seagate Barracuda, 4148MB, 7200 rpm	N/A	999.95	1029.95
ST 4500 W	Seagate Cheetah, 4348MB, 10000 rpm	N/A	N/A	1249.95
Q 9000 W	Quantum Atlas II, 8682MB, 7200 rpm	1349.95	1419.95	1449.95
ST 9000 W	Seagate Barracuda, 8600MB, 7200 rpm	N/A	1599.95	1649.95
ST 9100 W	Seagate Cheetah, 8683MB, 10000 rpm	N/A	N/A	1999.95

APS POWERBOOK STORAGE

el	Description	Int.	SR 2000	APS Pro
PowerBook Drive	IBM DCMA-21080, 1080MB, 4000 rpm	$599.95	N/A	N/A

APS REMOVABLE DRIVES

el	Description	Int.	SR 1000	SR 2000
SQ 5200	SyQuest 5200, 190MB	$349.95	N/A	$389.95
Jaz	(with 1 cartridge) 1GB	N/A	$399.95	399.95

APS MO DRIVES

el	Description	Int.	SR 1000	SR 2000
230 MO	(with 1 cartridge) 217MB	N/A	$299.95	$379.95

APS CD-ROM DRIVES

el	Description	External
CD16	16X CD-ROM in slimline case	$179.95*
CD-R	2X record/6X read CD-R (Phillips)	499.95
CD-R Plus	2X record/6X read CD-R (Sony)	499.95
CD-R Pro	4X record/6X read CD-R in Pro Enclosure	699.95
CD-R Pro	4X record/6X read CD-R in Full Height Enclosure	899.95
Jaz/CD-R System	2X record/6X read CD-R	899.95

able in an SR 2000 Enclosure for an additional $100.00

APS TAPE BACKUP SYSTEMS

el	Description	Internal	External
HyperQIC™	Travan 4 Conner QIC 3095, 8GB	$349.95	$399.95
HyperDAT®	DDS-2DC, 8GB	749.95	799.95
HyperDAT® Pro	DDS-2DC, 8GB	849.95	899.95
HyperDAT® III	DDS-3DC, 24GB	1149.95	1199.95

ed indicates either new price or product

maney-back satisfaction on all APS brand drives and accessories. Your risk is the cost of shipping. 30-day money-back guarantee
t apply to M-Power systems. Two year limited warranty on M-Power systems. Manitors carry separate warranty from their
ve manufactures.
bles sold separately.
r-Drive Repair or Replacement Warranty. APS will, at its discretion, replace or repair products found to be defective according to
s of the product's warranty
orders subject to 20% restocking fee.
ional customers must pay for all shipping charges.
pacities are formatted.
data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and
ment.
nd specifications are subject to change without notice.
d to install system software appropriate to your machine before using our hard drives.
ponsible for typographical errors.
, Alliance Peripheral Systems, Inc. All Rights Reserved.
case may not exactly match images shown.

1GB REMOVABLE DRIVE!

APS JAZ

- Hard drive performance
- Huge 1GB capacity on removable media

MW EDITORS' CHOICE

Jaz has changed the removable storage market forever! The performance of the APS Jaz rivals that of most fixed-platter hard disk drives.

ICE

$399.95

Includes ONE cartridge

APS Jaz drive with 4 cartridges $699.95

APS Q 2000

- High performance Ultra SCSI or Ultra ATA interface
- Increased performance, same reliability

Utilizing the next generation Quantum Fireball mechanism, this 5400 rpm drive has an average seek of as low as 8.4 ms and features MR heads and a digital EPRML read channel to support its formatted capacity of 2079MB. On an Ultra SCSI bus, it delivers a 16.1 ms access time, sustained read rate of up to 5.1MB per second and sustained write rate of up to 5.9MB per second. Available in our SR2000 and APS Pro enclosures.

ICE

Quantum

$299.95

Internal configuration

STEAL A 16X CD-ROM

APS CD16

- Super fast 16X CD-ROM performance
- Available in our slimline and SR2000 enclosure

Take advantage of the high performance 16X speed of the new APS CD16. The super fast CD16 sis the best value in CD-ROM drives today. It's perfect for use with multimedia or any other application requiring rapid data access. The APS CD 16 uses a tray loading mechanism that eliminates the need to carry a CD caddy. Just drop in the CD and go!

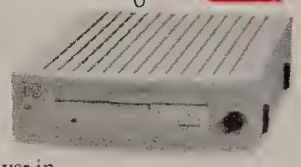
$179.95

Slimline configuration

BEST VALUE IN MO!

APS 230 MO

- Best value in MO storage
- Portable SR1000 enclosure



Our best value ever in removable media devices, the new APS 230 MO is the perfect solution for your growing data storage needs. It's compatible with 230MB and 128MB MO cartridges and delivers excellent MO performance.

ICE

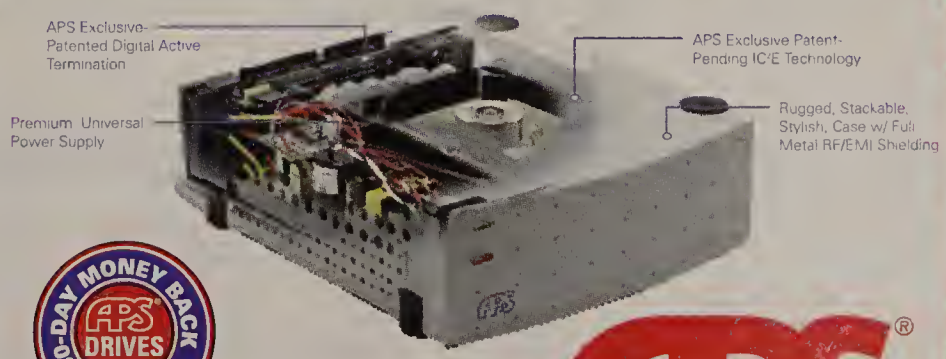
SR2000 only

$299.95

SR1000 configuration

Includes one FREE cartridge

APS DRIVES: TECHNOLOGY IS THE DIFFERENCE



30-DAY MONEY BACK GUARANTEE — APS DRIVES

VISA · MasterCard · NOVUS · TeleCheck

APS® Technologies

Call 800-945-4920

Visit our Web Page at http://www.apstech.com/
International Sales: (816) 920-4109
APS Technologies • 6131 Deramus • Kansas City, MO 64120

GREAT PRICES, PRICELESS SUPPORT!

Circle 62 on reader service card

J&R COMPUTER WORLD

Businesses, Lease Your Next Computer thru the J&R Corporate Sales Division, 1-800-221-3191.

La Cie Hard Drives

LaCie 2.1GB Quantum Fireball TM
External Hard Drive
•4500rpm •10.5ms avg. seek time •10MB/second transfer rate •SCSI cable, terminator, & Storage Utilities

$429.95 (LAC 015156)

La Cie 1.2GB Quantum Fireball TM (LAC 015242) $349.99
La Cie 4.3GB IBM Ultrastar (LAC 015186) $699.99
La Cie 4.5GB Quantum Atlas II (LAC 015306) $979.99

Apple® Printers

Apple® Calar StyleWriter® 4100
•Comes with everything you need to start printing-- inks, cable, printing software •Prints up to 4 ppm in black •Prints up to 600 dpi in black and up to 600 by 300 dpi in color •Connects easily to Mac® OS-based computers

$239.95 (APP M5793LL/A)

Apple® Calar StyleWriter® 4500 (APP M5663LL/A) $339.99
Apple® Calar StyleWriter® 6500 (APP M5656LL/A) $469.99

Monitors

Panasonic PanaSync® S17
17" Digital Color CRT Display
•16" viewable screen •0.27mm dot pitch •Up to 1024 x 768 maximum resolution NI for Macintosh •MPR-II

$599.99 (PAN S17)

Panasonic PanaSync E50 15" (PAN E50) $299.99
Sony MultiScan 100-SF 15" (SON 100SF) $399.99
Sony MultiScan 200-SF 17" (SON 200SF) $799.99

Apple® Power Macintosh® Special

J&R Exclusive Offer! Purchase any Power Macintosh in this ad, and receive a Panasonic E50 monitor for only $99.99, or a Panasonic S17 monitor for $299.99!

Apple® Power Macintosh® 4400/200 16/2GB/8x-CD

•200MHz PowerPC™ 603e processor •16MB RAM, upgradeable to 160MB •2-gigabyte IDE hard drive •8X CD-ROM •256K L-2 cache •2MB VRAM •Apple SuperDrive® •16-bit audio •2 PCI I/O slots •10Base-T Ethernet •SCSI bus •Current Mac® OS •AppleDesign® keyboard and mouse •Internet access software •Monitor sold separately

$1499.99 (APP M5767LL/A)

Business Lease for NO MONEY DOWN, NO PAYMENTS FOR 30 DAYS! Only $54.90 per month! (see below for details)*

Apple® Power Macintosh® 7300/180 16/2GB/12x-CD

•180MHz PowerPC™ 604e processor •12X CD-ROM

$2099.99 (APP M4946LL/A)

Lease for only $76.86 a month!*

Apple® Power Macintosh® 7300/200 32/2GB/12x-CD

•200MHz PowerPC™ 604e processor •32MB RAM

$2399.99 (APP M5543LL/A)

Lease for only $87.84 a month!*

Apple® Power Macintosh® 8600/200 32/2GB/12x-CD

•200MHz PowerPC™ 604e processor •Zip drive •MiniTower

$2999.99 (APP M5453LL/A)

Lease for only $103.50 a month!*

Apple® Power Macintosh® 9600/233 32/4GB/12x-CD

•233MHz PowerPC™ 603e processor •MiniTower

$3499.99 (APP M5883LL/A)

Lease for only $120.75 a month!*

Apple® Power Macintosh® 9600MP/200 32/4GB/12x-CD

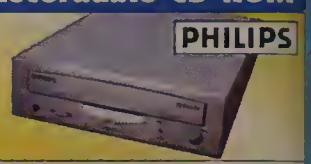
•Two 200MHz PowerPC™ 604e processors •MiniTower

$4199.99 (APP M4952LL/A)

Lease for only $144.90 a month!*

PowerPC and the PowerPC logo are trademarks of International Business Machines Corporation, used under license therefrom.

Recordable CD-ROM



Philips CDD2600/40
6X CD Reader/2X Recorder
•Record either the individual track, the complete disk, or by increments •Fast SCSI transfer rate and access time •1MB buffer •SCSI cable

$599.99 (PHI CDD2600/40)

LaCie 015444 6X Reader/2X Writer External SCSI Drive (LAC 015444) $399.99
LaCie 015445 6X Reader/4X Writer External SCSI Drive (LAC 015445) $799.99

Modems

Global Village TelePort Fax/Data/Voice Modem
•Full-duplex speakerphone with microphone, speaker, and voicemail •External version •33.6/14.4Kbps •Simultaneous voice and data

$149.99 (GLV TELEPORT336)

Global Village TelePort 56K X2 (GLV TELE56KX2) $219.99
Global Village TelePort 56K KFlex (GLV TELE56KFLEX) $219.99
US Robotics Mac Sportster 56K (USR MACSPORT56) $219.99

Scanners

Visioneer PaperPort Strobe
Compact Color Scanner
•Fits between keyboard and Mac •Scans everything from business cards to 30" newsprint •24-bit color

$329.99 (VIR STROBE-MAC)

Micratek ScanMaker E3 (MTK SCANE3) $199.99
UMAX Astra 1200S Mac Deluxe (UMX AST12MACDLX) $449.99
Agfa StudioScan IIsi (AGF SSCANIISIMA) $649.99

BUSINESS LEASING:

No Money Down, No Payments for 30 Days!

1) Allows flexibility to add or upgrade equipment at any time
2) Conserves your capital
3) Saves time, credit decisions are quick and easy
4) Covers entire packages– equipment, software, service contracts, and peripherals

*All lease payments are exclusive of applicable taxes. Minimum leasing payment is $50 per month. All leases are subject to credit approval and require an administrative fee of $49.95 to be billed on the first invoice. Leasing program administered by Dana Commercial Credit. Leases are Business Leases, $0 down, 36 month term with $1.00 purchase option.

Call J&R Corporate Sales 1-800-221-3191 or 1-212-238-9080
($1400 Minimum Lease Amount)

Entertainment Software

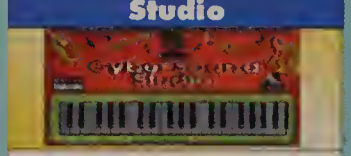
Davidson *Math Far The Real World* **$29.99**

Arthur's Reading Race by Broderbund $26.99
Last Express by Broderbund $36.99
Master Cook 4.0 by Sierra $32.99
Monopoly by Hasbro $26.99
MYST by Broderbund $22.99
Reading Blaster 2000 by Davidson $26.99

GT Interactive *Duke Nukem 3D- Atomic Edition* **$44.99**

Scrabble by Hasbro $26.99
Sesame Street: Letters by Electronic Arts ... $17.99
Sesame Street: Numbers by Electronic Arts ... $17.99
Titanic- Adventure Out of Time by Davidson $42.99
Werewolf vs. Comanche 2 by Electronic Arts ... $46.99
You Don't Know Jack- Movies by Berkeley $29.99

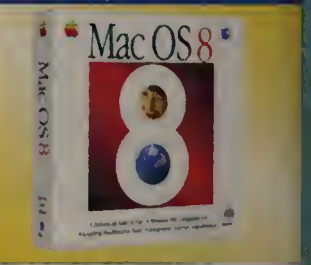
CyberSound Studio



ALL YOU NEED TO PLAY, RECORD, AND EDIT MUSIC ON YOUR COMPUTER!
•No need for a sound card or MIDI module •37-Key MIDI Keyboard and MIDI Interface and cables are all provided •Software includes the CyberSynth™ virtual sound module, CyberPlayer™ 16-track sequencer, as well as 223 studio-quality instruments and 17 different drum sets •Comes with Groove Templates •Designed for Power Macintosh

$89.99 (CYS STUDIO-C)

Apple® MAC® OS 8



•Mac® OS 8 sets a new standard for enhanced productivity and user-friendliness with its sleek new platinum look, multi-tasking abilities and built-in Internet functionality

$99.99 (APP OS8-C)

To Order Toll Free and Receive a Free Catalogue

800-221-8180

24 Hours, 7 Days, Anywhere In The USA or FAX us at 1-800-232-4432

MAIL ORDERS: J&R Computer World, Dept. MW0997
• 59-50 Queens Midtown Expressway • Maspeth, Queens NY 11378
CALL 1-800-221-8180 for shipping information. DO NOT SEND CASH

Not responsible for typographical or pictorial errors. Some quantities may be limited. All merchandise brand-new, factory-fresh and 100% guaranteed

J&R COMPUTER WORLD

The Only Company to Win Two Separate RETAILER OF THE YEAR Awards!

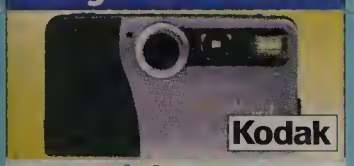
Portable CD-ROM

Panasonic KX-L783A
8X PCMCIA CD-ROM Drive
•Small, lightweight, portable player for PowerBooks •Spatializer 3D Stereo Sound •1200KB/sec. and 180ms, when used with AC adapter

$399.99 (PAN KXL783M)

Sony PRD-250MC SCSI 4X Discmon® (SON PRD-250MC) $149.99
LoCie 12X SCSI CD-ROM Drive (LAC 015200) $199.99
Sony PRD-650MC 6X Discmon® (SON PRO-650MC) $299.99

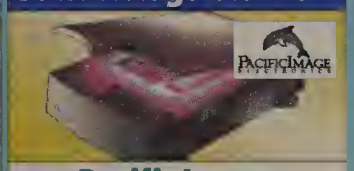
Digital Cameras



Kodak DC-25
Digital Camera
$299.99 (KOD OC25)

Olympus D200L (OLM D200L) $579.99
Canon PowerShot 350 (CAN POWESHOT350) $699.99
Sony DSC-F1 (SON DSC-F1) $699.99
Olympus D300L (OLM D300L) $899.99
Kodak DC-120 (KOD OC120) $999.99

Pacific Image Scanners



Pacific Image
ScanAce III
with Full *Photoshop 4.0*
•Single-pass flatbed scanner •600 x 1200 dpi optical resolution •Scans up to 8.5" x 14" •68.7 billion colors (36-bit) •SCSI cable and terminator

$899.99 (PCF ACEIIIPH-MA) **after $100 mail-in rebate** (Rebate expires 9/30/97)

ScanAce II Mac Scanner (PCF ACEII-MAC) $349.99
ScanAce II with full *Photoshop 4.0* (PCF ACEIIPH-MAC) $549.99

Apple® Macintosh® PowerBook® Offer

J&R Exclusive Offer!

Purchase any PowerBook® in this ad, receive a FREE Iomega Zip Drive and adapter!

Iomega External SCSI Zip Drive **$149.99 regular price** (BER ZIP100SCSI)
Iomega PowerBook® Adapter **$19.99 regular price** (BER ZIPPOWERADAPT)
$169.98 VALUE

Apple® PowerBook® 1400CS/117 12/750MB

•117MHz PowerPC™ 603e processor •12MB RAM, upgradeable to 64MB •750MB hard drive •11.3" DSTN color LCD with 800 x 600 max res •1.4MB SuperDrive® •Built-in 16-bit stereo sound •CD-ROM drive is optional

$1699.99 (APP M5287LL/A)

Business Lease for NO MONEY DOWN, NO PAYMENTS FOR 30 DAYS! Only $62.22 per month! (see below for details*)

Apple® PowerBook® 1400CS/117MHz 16/750MB/6x-CD

$1999.99 (APP M5292LL/A) — Lease for only $73.20 a month!*

Apple® PowerBook® 1400C/133MHz 16/1GB/6x-CD

$3199.99 (APP M5576LL/A) — Lease for only $110.40 a month!*

Apple® PowerBook® 3400C/180MHz 16/1.3GB/6x-CD

$4199.99 (APP M4597LL/A) — Lease for only $144.90 a month!*

Apple® PowerBook® 3400C/200MHz 16/2GB/6x-CD

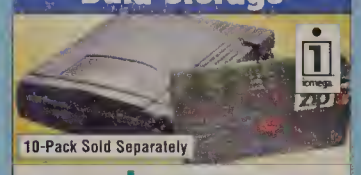
$4699.99 (APP M4595LL/A) — Lease for only $162.15 a month!*

Apple® PowerBook® 3400C/240MHz 16/3GB/12x-CD

$5999.99 (APP M5550LL/A) — Lease for only $207.00 a month!*

PowerPC and the PowerPC logo are trademarks of International Business Machines Corporation, used under license therefrom.

Data Storage



Iomega
External SCSI Zip Drive
•Use as hard drive or as mobile storage •Increase data capacity with inexpensive and removable 100MB disks •Includes 1 disk, SCSI interface

$149.99 (BER ZIP100SCSI)

SyQuest ezFlyer 230 SCSI Drive (SYQ EZ230EXTMC) *external* . $199.99
Iomega Jaz 1GB SCSI Drive (BER JAZEXTSCSI) . *external* . . $399.99
SyQuest syjet 1.5GB Hard Drive (SYQ SYJET1SE-09) . *external* . $499.99

UMAX Computers

UMAX SuperMac S900L MiniTower
•PowerPC 604e 200MHz processor •32MB RAM, expandable to 1-gig •2.1GB hard drive •8X CD-ROM drive •128-bit graphics card with 4MB VRAM •Allows the addition of another 604/150MHz processor •512K Level-2 cache •Mac OS

$2999.99 (UMX S900L/200)

UMAX SuperMac S900L, 225MHz (UMX S900L/225) $3499.99
UMAX SuperMac S900L, 250MHz (UMX S900L/250) $4899.99

Motorola Computers

StarMax 5000/300
MiniTower Computer
•PowerPC 603e 300MHz processor •32MB RAM •4.3-gigabyte hard drive •16X-speed CD-ROM drive •Built-in Iomega 100MB Zip drive •512K cache •10-Base T Ethernet

$2899.99 (MOT AMT53300)

StarMax 4000/160 MiniTower 160MHz, 32MB RAM, 2.5GB hard drive (MOT AMT4160-6S) $1899.99
StarMax 4000/200 MiniTower 200MHz, 32MB RAM, 2.5GB hard drive (MOT AMT4200-6) $2699.99

Business Software • Business Software • Business Software

Adobe *Illustrator (7.0)* **$379.99**

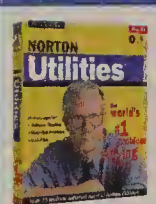
Backup by NovaStor $49.99
Crayola Art Studio 2 by Micrografx $29.99
Cu See Me Enhanced (2.1) by White Pine $69.99
Emailer (2.0) by Claris $44.99
Eudora Mail Pro (3.1) by Qualcomm $54.99
FileMaker Pro (3.0) by Claris $189.99

Casady & Greene *Conflict Catcher (4.0)* **$59.99**

Navigator Personal Ed. (3.0) by Netscape $44.99
Office (4.21) by Microsoft $449.99
Organizer (2.0) by Claris $69.99
PageMill (2.0) by Adobe $99.99
QuarkXPress (3.32) by Quark $649.99
QuickBooks Pro (4.0) by Intuit $189.99

Now *Up-To-Date & Contact (3.6.5)* **$79.99**

RAM Doubler (2.0) by Connectix $54.99
SAM (4.5) Anti-Virus by Symantec $69.99
SoftWindows 95 (4.0) by Insignia $339.99
Speed Doubler (2.0) by Connectix $54.99
Streetwise Small Business Startup by Adams . $24.99
StuffIt Deluxe (4.0) by Aladdin $69.99



Symantec *Norton Utilities (3.5)* **$89.99**

Suitcase (3.0) by Symantec $69.99
Turbo CAD 2D/3D (3.0) by IMSI $79.99
Type Manager Deluxe (4.0) by Adobe $49.99
Virex (5.7) by Data Watch $59.99
Word (6.01) by Microsoft $299.99
Works (4.0) Internet Edition by Claris $89.99

Order Your Free Catalogue Now!

J&R COMPUTER WORLD

Apple Power Mac 6500/275 275MHz 32MB RAM 4GB Hard Drive **$2999.99**

Hewlett-Packard CopyJet-M 7MB RAM PostScript 600 x 600 dpi **$599.99**

Hewlett-Packard DeskWriter 680C 5-ppm black, 1.5-ppm color **$299.99**

All Major Credit Cards Accepted

To Order Toll Free and Receive a Free Catalogue

800-221-8180

24 Hours, 7 Days, Anywhere in the USA or FAX us at 1-800-232-4432

Circle 282 on reader service card

MacMall

The Mall With It All...For Less!

56K Fax Modem
$118.99*!
*with $20 trade-in of any 33.6Kbps modem. Regular price $138
#95195

Norton Utilities 3.5 CD
NEW!
$44.99*!
*After $50 upgrade rebate
#94820

Mac OS
$68
#7834
FREE upgrade to
When you order Mac
CD Up

CPUs AS LOW

Plus, We'll Beat ANY CPU

Fuji Zip Disks
only $9.99* each
#88261
Limit 2 per customer
*When purchased in 10 pack, after $20 mail-in rebate.

PowerBook® 1400 as low as $1,699!!!

PowerBook 1400cs
PowerPC 603e/117MHz
12MB/750MB
11.3" Dual Scan Display
$1,699 #96651
PLUS! Subtract Instant Rebate $25!

PowerBook 1400c
PowerPC 603e/133MHz
16MB/1GB/6X CD (shown)
11.3" Active Matrix Display
$3,199 #96654
PLUS! Subtract Instant Rebate $100!

Authorized Catalog Reseller

PowerBook® 3400 as low as $3,89

PowerBook 3400c
PowerPC 603e
180MHz/16MB/1.3GB
12.1" Active Matrix Display
$3,899 #96655
PLUS! Subtract Instant Rebate $100!

PowerBook 3400c
PowerPC 603e/240MHz
16MB/3GB/12X CD (shown)
33.6 Modem/12.1" Active Matrix Display
$5,999 #96660
PLUS! Subtract Instant Rebate $100!

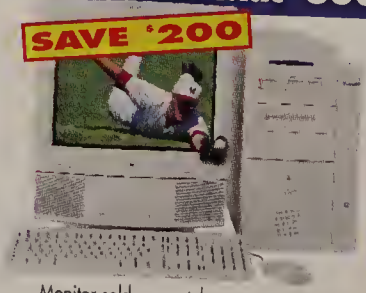
Authorized Catalog Reseller

MacMall MEMORY DEALS

Mac II's, LC's, Quadra's, Centris, & Most Performa Models		
#2224	1MB 1X8 30pin 70ns	$25
#60274	2MB 2X8 30pin 70ns	$29
#2239	4MB 4X8 30pin 70ns	$39
#4468	4MB 1X32 72pin 70ns	$29
#4177	8MB 2X32 72pin 70ns	$49
#65416	16MB 4X32 72pin 70ns	$99
#65417	32MB 8X32 72pin 70ns	$199
Performa 6360, 6400, Most PowerMacs & OS Compatible DIMMS		
#72645	8MB 168pin 5V 60ns	$59
#72646	16MB 168pin 5V 60ns	$99
#72647	32MB 168pin 5V 60ns	$199
#72648	64MB 168pin 5V 60ns	$399
PowerBook 1400 Models		
#87211	16MB Module	$159
#87212	32MB Upgrade Kit	$319
#89441	48MB Upgrade Kit	$479
PowerBook 3400 Models		
#90681	16MB Module	$159
#90682	32MB Module	$299
#90683	64MB Module	$599
#90684	128MB Module	$1,199

Power Mac™ 8600 only $2,999!!!

SAVE $200

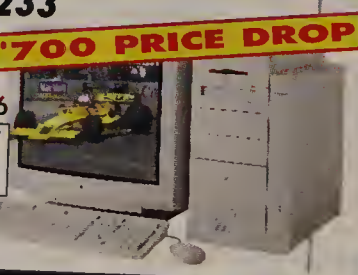


Monitor sold separately.

Power Mac™ 8600/200MHz
604e/32MB/2GB/12X CD
Internal 100MB Zip Drive
$2,999 #96643
PLUS! Subtract Instant Rebate $50!

Power Mac™ 9600/233
604e/32MB/4GB/12X CD
$3,499 #96646
PLUS! Subtract Instant Rebate $100!

$700 PRICE DROP



Monitor sold separately.

Power Mac™ 6500

Monitor sold separately.

Power Mac™ 6500/225MHz
PowerPC 603e/32MB/3GB/12X CD/33.6 Modem
$1,999 #96635
PLUS! Subtract Instant Rebate $25!

Power Mac™ 6500/300MHz
PowerPC 603e/64MB/4GB/12X CD
33.6 Modem/Internal Zip Drive
$2,999 #96639
PLUS! Subtract Instant Rebate $50!

Authorized Catalog Reseller

FASTEST OVERNIGHT DELIVERY!
Order Today—Get it Tomorrow by 10:30 am

1-800-217-9492

MACMALL SPECIAL!

Nomai 540MB External
Read/Write 270MB 540MB SCSI Disks
$149.99*! #88871
*After $50 mail-in rebate.

Visioneer Paperport Strobe
Fast 24-bit Color Scanning
$329.99! #95740

NEW Version!

Adobe Illustrator 7.0 Upgrade
$97.99! #94828

Connectix Virtual PC $124.99* ! #97414
(with Windows 95)
*After $25 rebate for SoftWindows™ users
Call for system requirements and details.

US Robotics 33.6 Fax/Voice Modem $49.99* ! #88128
*after $40 mail-in rebate.

Umax Astra 600S Scanner $248.99 ! 30-bit • color • legal size #93416

SyQuest SyJet 1.5GB SCSI Removable Drive
Special 3GB Offer!
$499.99 ! #97588
Get an extra 1.5GB cartridge (mail-in offer)

Order And Register to Win a NEW Mercedes SLK!
Call us for details. No purchase necessary.

AS $895

Price By At Least $10!

SUPER SYSTEM SAVINGS!

PowerComputing

PowerBase 180LP
603e/180MHz/16MB
1.2GB/12X CD
2MB VRAM
$999
#96683
Monitor sold separately.
While supplies lost.

Authorized Catalog Reseller

Power Mac 4400/200MHz
PowerPC 603e/16MB
2.0GB/8X CD/256K
$1,499 #96632
WAS $1,699
Monitor sold separately
PLUS! Subtract Instant Rebate $25!

Power Mac 4400/200MHz/603e
32MB/2.0GB/12X CD – includes Microsoft Office!
$1,799 #96633
PLUS! Subtract Instant Rebate $25!

UMAX

SUPERMac C500/140
603e/140MHz
16MB/1.2GB/8X CD
$895 #96671
While supplies lost.
Monitor sold separately.

Power Mac 7300/180MHz
SAVE up to $50
PowerPC 604e/16MB
2.0GB/12X CD/256K
$2,099 #96640
Monitor sold separately
PLUS! Subtract Instant Rebate $50!

Power Mac 7300 200MHz
PowerPC 604e
32MB/2.0GB/12X CD/256K
$2,399 #96641
PLUS! Subtract Instant Rebate $50!

Authorized Catalog Reseller

SUPERMac C500LT/180
603e/180MHz/16MB
1.2GB/8X CD/256K
$945 #96673
Monitor sold separately.
While supplies lost.

We'll Beat ANY Advertised Price
on ANY Apple Computer or Mac OS Compatible from ANY Authorized Apple or Mac OS Compatible Dealer!

This offer applies only to legitimate advertised prices offered by authorized Apple and/or MacOS compatible dealers. We may require proof of dealer's pricing. Advertised item must be identical to the one offered by MacMall and must be a new item in a factory-sealed box. We reserve the right to limit quantity ordered. This offer does not apply to special, bonus or free offers, grand openings, special purchases or special buys, manufacturer's rebates, close-outs, clearances, or to dealer's one-of-a-kind or other limited quantity offers. Nor does it apply to advertising errors made by any authorized dealer. We will beat the price by at least $10! Not open to dealers. Void where prohibited. Sorry, offer not valid in conjunction with Instant Rebate offer.

Apple® Macintosh® Performa® 6360
PowerPC 603e 16MB
1.2GB/8X CD/28.8 Modem
$1,199 #96647
PLUS! Subtract an additional $25!
Monitor sold separately

MOTOROLA

Motorola StarMax 3000MT/180
603e 180MHz 32MB
2.5GB/8X CD/28.8 Modem
$1,395 #96700
Monitor sold separately
PLUS! Subtract an additional $25!

Stylus Color Pro Printer
20 dpi up o 3ppm
efurbished
year
varranty
EXCLUSIVE
Postscript Option only $69.99 #77043
$229.99 !
#96717
EPSON

Apple Multiple Scan 1705
- 1024x768@75Hz
- 28mm dot pitch

$649! #75945

Apple StyleWriter 4500
- Up to 600dpi
- Up to 5ppm

New! $339.99 !
#97169
#90768 StyleWriter 2500 Refurbished $199.99*
*While supplies last.

IMPORTANT: While we do our best to check errors, mistakes may occur–call to verify pricing.

Get your FREE issue today!
Please check issue(s) you wish to receive.
☐ MacMall® ☐ PC Mall ☐ DataCom Mall
Name _____
Address _____
City _____
State _____ Zip _____
Mail to: MacMall, Dept. ADV.,
2645 Maricopa St., Torrance, CA 90503

MacMall
1-800-217-9492
www.macmall.com

Priority Code: MacWorld ZMWD791

Special Of The Month

Connectix Virtual PC

Windows 95 OR Windows 3.1

$137

BOTTOM LINE DISTRIBUTION

AGFA · radius · iiyama · Adobe · newer tech

The *one* source for all your Macintosh needs.

http://www.blol.com/macworld/ **1-800-990-5699**

Be sure to check our web site for daily "Show Specials"

Media 100 QX Professional Level Digital Video Capture Card

$1969

*Component System $3795

Media 100 pricing reflects a $2000.00 instant rebate which expires 8-15-97

Agfa ePhoto 307 Digital Camera

$279

Yamaha CDR 400TXPM 4x Record 6x Read

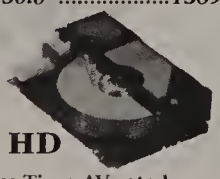
$729

$279

Agfa SnapScan

AGFA Snapscan 600 379
AGFA Snapscan 600 Artline.....S29
AGFA StudioStar For Mac 769
AGFA StudioStar For PC.....769
Agfa Arcus II For Macintosh/PC...1569
*AGFA Arcus II *Solo*.....1369*

IBM Ultrastar 2XP 3.5" 9.1GB AV HD



7.5ms Access Time AV rated

Internal.....1199
External 1299
18BG RAID 2599*

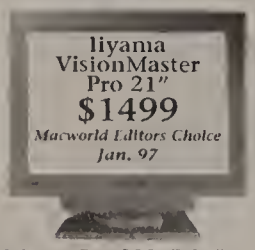
*Includes Adaptec Card and RAID Software

Miro DC30

$699

Kensington Orbit

$51.95



VisionMaster Pro 9021E 21".....1499
VisionMaster 8221E 21" 1429
Diamondtron 9017E 17" 719
VisionMaster 8617E 17".....639
VisionMaster 8221E 1S" 359

Prices Listed Reflect a 3% Ca$h Discount On Apple And UMAX Systems!

UMAX Computer Corporation — SuperMac S900L 604e/250Mhz

$4449 Now Shipping!

- 604e PPC 250Mhz!
- 32MB RAM, 512K Cache
- 8x Speed CD-ROM
- 2GB 7200 RPM HD
- IMS 128 8MB VRAM
- Processor Upgradable
- 1-Year Warranty

We Offer The Complete Line:

S900L/180Mhz 32/2GB/CD $2509
S900L/200Mhz Dual Processor $3709
S900L/200Mhz 32/2.1GB/CD $2807
S900L/233Mhz 32/2GB/CD $3527
C500L/140Mhz 16/1.2/CD $889
C500L/180Mhz 16/1.2/CD $1137
C600L/180Mhz 16/1.2/CD $1229
C600L/200Mhz 16/2.1/CD $1437
C600L/240Mhz 24/2.1/CD $1647

POWERtools Infiniti 4200 604e/200Mhz

$1929

- 604e PowerPC 200Mhz!
- 32MB RAM, 256k Cache
- 16x Speed CD-ROM
- 3.2GB 5400RPM HD
- 2MB VRAM, Kbd. & Mouse
- Processor Upgradable
- 1-Year Warranty

Pre-Configured Systems:

Infiniti 3200/200 16/2GB/CD.....$1306
Infiniti 4200/200 16/2GB/CD.....$1709

Customize w/Bare Bones Systems:

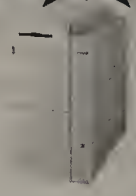
Infiniti 4200/200Mhz 604e.....$1299
Infiniti 3200/200Mhz 603e.....$899

PowerTools Add Ons:

Sony CD-R 2x/6x w/Toast.....$389
IBM Deskstar IDE 3.2GB HD.....$349

Apple PowerMac 9600 604e/233Mhz

$3357



- 604e PowerPC 233Mhz
- 32MB RAM, 512K Cach
- 12x Speed CD-ROM
- 4GB 5400RPM HD
- IMS 128 4MB VRAM
- Processor Upgradable
- 1-Year Warranty

All New Apple Systems:

PowerMac 6500/225 32/3/12X.....$18
PowerMac 6500/275 32/4/12X.....$272
PowerMac 6500/300 64/4/12X.....$282
PowerMac 4400/200 16/1.2/8X $136
PowerMac 7300/180 16/2/12x $20
PowerMac 7300/200 32/2/12x $22
PowerMac 8600/200 32/2/12x $288
PowerMac 9600/200 32/4/12x $30
PowerMac 9600/233Mhz $335

w/Any System Purchase Add RAM At Discount Prices!

Apple/UMAX DIMMs		PowerTools DIMMs		VRAM	
8MB	$35	32MB	$157	1MB PCI	$28
16MB	$77	64MB	$321	4MB IMS	$269
32MB	$147	256k L2 Cache	79	*8MB IM2*	*$597*
64MB	$279	512k L2 Cache	129	ATI VR 4MB	$249

All RAM Has A Lifetime Warranty From Bottom Line!

PCI/Nubus Cards

ATTO Express PCI Fast/Wide 3S9
FWB Jackhammer PCI Fast/Wide 379
Targa 1000 PCI Digital Video Card.....1899
Targa 2000 PCI Digital Video Card 3299
Radius VideoVision PCI Digital Video 3299
LC/PDS 2MB VRAM 630/LCIII 249
MacPicasso 2MB VRAM NUBUS 319

If you don't see what you are looking for call Bert @ x383!

Storage/Back-Up

Quantum Fireball 3.2GB Internal.....409
Quantum Fireball 6.4GB Internal.....579
Sony Sony DDS-3 SDT-9000.....1249
SyQuest SyJet 1.SGB External.....479
IBM Deskstar 4.5GB Fast/Wide SCSI 599
IBM Ultrastar 2ES 4.3GB.....679
Sony CDR 2x/6x Recordable Drive.....359

Digital Cameras

Kodak Digital Science DC-2S 479
Kodak Digital Science DC-50 628
Kodak Digital Science DC-120 899
Sony DSC-F1 Digital Camera 690
Olympus D-200L Digital Camera.....589
Olympus D-300L Digital Camera 885
Epson PhotoPC S00.....489
Apple QuickTake 200.....609

Modems

US Robotics Sportster S6k X2 .....194.9S
US Robotics Sportster 36.6 Voice.....99.99
Global Village Teleport 56k X2 .....182.95

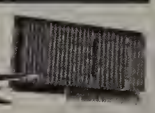
PCMCIA Modems

Global Village PowerPort Platinum Pro.....329
US Robotics 33.6/10BT 319
US Robotics 28.8 PC Card Fax/Modem 209
Viking Netlink 33.6k/S6.6k Modem....149/199

ATI VR PCI **$259**

Aceleration!

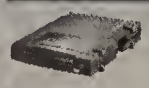
XLR8 MACh Speed 233Mhz **$1129**



XLR8 MACh Speed 180Mhz 499
XLR8 MACh Speed 200Mhz 7S9
XLR8 MACh Speed 225Mhz 999
Newer MAXPowr 180Mhz 604e 439*
Newer MAXPowr 200Mhz 604e 639*
Newer MAXPowr Dual 180Mhz-604e 1S79
PowerClock 6100/7100-66 84Mhz 49
256k Cache Card For 61xx/7100/8100 29

*Price after rebate check http://www.blol.com/rebate

Iomega



Iomega Zip $142.95

Iomega Zip Drive External 143
Iomega Zip Drive Internal 143
Iomega Zip/Jaz Internal Kits.....2S
Iomega Jaz Drive Internal/External ..297/388
Iomega Jaz Drive 1GB Carts. Singles 89
Iomega Zip Drive 100MB Carts. 10-Pack ..119*

*Price after rebate check http://www.blol.com/rebate

Monitors

NEC Multisync M500 15" .2Smm.....389
Viewsonic OptiQuest Q71 17".....S39
Viewsonic 17EA w/Speakers.....S99
Samsung SuyncMaster 6NE 17".....599
Sony 200sx 17" Monitor 679
Viewsonic GT800 .30mm 20" 1246
Mitsubishi Diamond Pro 91TXM 21" 1499
Apple 8S0AV 20" .26mm 1899

If you don't see what you need call George @ x354!

Epson Printers

Epson Stylus Color 600 1440dpi!.....295
Epson Stylus Color 800 1440dpi!.....439
Epson Stylus Pro XL 11"x17".....14S9
Epson Stylus 3000 11"x17" 1897

PowerBooks/RAM Modules

PowerBook 1400 Series:

PowerBook 1400cs/133Mhz 8xCD.....CA
PowerBook 1400c/166Mhz 8xCD.....CA
PowerBook 1400c/133Mhz.....2

1400 Memory Modules:

Newer Technology		Viking/Techwor	
12MB Stackable	$97	16MB Stackable	$
16MB Stackable	$1S9	24MB RAM	$1
24MB Stackable	$229	32MB RAM	$

PowerBook 2400/3400 Series:

PowerBook 2400c/180Mhz 16/2GB 35
PowerBook 3400c/180/CD 39
PowerBook 3400c/200/CD 4
PowerBook 3400c/240/12xCD.....57

3400 Memory Modules:

16MB RAM	$139	64MB RAM	$
24MB RAM	$219	96MB RAM	$
32MB RAM	$379	128MB RAM	$1

Scanners

*UMAX Astra 600s *NEW* .....*
UMAX Astra 1200-s .....
UMAX PowerLook II w/Photoshop.....1
Epson Expression 636 Upgrade .....
Microtek Scanmaker E3 .....
Microtek Scanmaker III 600x1200 1
Nikon CoolScan II Slide Scanner 1

Removable Media

SyQuest 44MB/88MB.....45
SyQuest 200MB/270MB.....5
RICOH CD-R 74Min. (Minimum 10) 4
Optical Media 128MB/230MB.....15
Sony DAT Tapes 120M .....

Mac OS 7.6 Free Upgrade To OS 8

$93.97

Waiting f Mac OS Check our W Site for special de

http://www.blol.com/macworld Mac On! **1-800-990-5699**

Shipping: **$5, 5 lbs., 2 Days** Payment: No surcharge on credit cards. Corporate POs welcome. Tax: Texas residents add 8.25% sales tax. Prices: Items, prices and availability subject to change. Returns: Call for RMA number. Must be in original condition, opened software is non-refundable. Subject to a restocking fee. Original shipping is non-refundable. Apple brand products are not returnable for refund. Bottom Line Distribution cannot be responsible for errors in typography or photography. Customer Service:512-892-4090. International Sales: Bottom Line Distribution is committed to the needs of the international Macintosh user. We offer discounted rates with DHL. Delivery to most countries is 2 to 3 days. Dealer inquiries are welcome. Language interpreters available. Address: 4544 S. Lamar Blvd., #100, Austin, TX 78745

BOTTOM LIN DISTRIBUTION

Circle 63 on reader service card

MEGAHAUS 1-800-786-1184

• UNBEATABLE DEALS •

QUANTUM 3GB HARD DRIVE
4500rpm, 10.5ms, 3yr wty
Internal [MAC3240QI] $319
External [MAC3240QX] $379

QUANTUM 4GB WIDE
Rated fastest drive in 5/97 MacWorld
Internal [MAC4550QWI] $759
External [MAC4550QWX] $859

MICROPOLIS 4GB HARD DRIVE
SCSI Internal [MAC4100MCI] $559
SCSI External [MAC4100MCX] $619
WIDE Internal [MAC4294MCWI] $559
WIDE External [MAC4294MCWX] $659

ADAPTEC WIDE CONTROLLER
PCI controller [A2940MUW] $279

IOMEGA JAZ DRIVE
Full retail package in Iomega case.
External w/1 disk [JAZX] $379
Media any qty [JAZC1GIGMAC] $87

FUJITSU 9 GIG HARD DRIVE
Ultra SCSI [M2949S] $1049
Ultra Wide SCSI [M2949W] $1109

SSS CD RECORDERS
Complete kit includes External drive, Toast software & 5 free disks.
2x6 [SSS2X6CDRM5] $409
4x6 [SSS4X6CDRM5] $629

CDR74 BLANK MEDIA
Price alone / w/CDR drive
5 PACK [CDR74-5] $31 / $28
20 PACK [CDR74-20] $95 / $90
50 PACK [CDR74-50] $225 / $215
We will not be undersold on CDR media!

STOMPER CD LABEL KIT
100 labels, applicator, & template software [CDLABELKIT] $49

TOSHIBA CD ROM
12X External [XM5701XM] $179
15X External [XM3801XM] $209

Nak 16X, 4 Disc CD Changer
External [MJS16XM] $339

4.6GB OPTICAL DRIVE
Complete kit includes 1 free disk
External [SSS4.6MAC] $1429

• SCSI HARD DRIVES •

MICROPOLIS

						Int	Ext
4100MB	7.9ms	7200rpm	512K	MC4341	5yr	$559	$619
4550MB	7.9ms	7200rpm	512K	MC4345	5yr	$629	$689
9091MB	8.5ms	7200rpm	512K	MC3391	5yr	$1059	$1119
SCSI A/V - Drives fine tuned for audio and video applications.							
4550MB	7.9ms	7200rpm	512K	MC4345AV	5yr	$779	$839
9091MB	8.5ms	7200rpm	512K	MC3391AV	5yr	$1209	$1269
WIDE SCSI							
4294MB	8ms	7200rpm	512K	MC3243W	5yr	$559	$659
4550MB	7.9ms	7200rpm	512K	MC4345W	5yr	$659	$779
9091MB	8.5ms	7200rpm	512K	MC3391W	5yr	$1089	$1209
WIDE SCSI A/V							
4550MB	7.9ms	7200rpm	512K	MC4345WAV	5yr	$829	$949
9091MB	8.5ms	7200rpm	512K	MC3391WAV	5yr	$1259	$1379

Seagate

1050MB	9ms	5400rpm	512K	ST31055N	5yr	$269	$329
2150MB	11ms	5400rpm	128K	ST52160N	3yr	$309	$369
2150MB	8ms	7200rpm	1024K	ST32171N	5yr	$500	$560
4350MB	8ms	7200rpm	512K	ST34371N	5yr	$759	$819
9100MB	8ms	7200rpm	512K	ST19171N	5yr	$1289	$1349
23200MB	13ms	5400rpm	512K	ST423451N	5yr	$2799	$2899
WIDE SCSI							
1050MB	9ms	5400rpm	512K	ST31055W	5yr	$359	$479
2150MB	8ms	7200rpm	1024K	ST32171W	5yr	$519	$639
4350MB	8ms	7200rpm	1024K	ST34371W	5yr	$779	$899
4550MB	7.5ms	10,000rpm	512K	ST34501W	5yr	$959	$1079
9100MB	8ms	7200rpm	1024K	ST19171W	5yr	$1339	$1459
9100MB	8ms	10,000rpm	512K	ST19101W	5yr	$1599	$1719
23200MB	13ms	5400rpm	512K	ST423451W	5yr	$2799	$2949

Quantum™

2151MB	10ms	5400rpm	128K	FB32160S	3yr	$249	$309
3228MB	10ms	5400rpm	128K	FB33240S	3yr	$319	$379
4310MB	10ms	5400rpm	128K	FB34320S	3yr	$379	$439
4550MB	8ms	7200rpm	512K	XP34550S	5yr	$739	$799
6448MB	10ms	5400rpm	128K	FB36480S	3yr	$548	$608
9100MB	8ms	7200rpm	512K	XP39100S	5yr	$1129	$1189
WIDE SCSI							
4550MB	8ms	7200rpm	512K	XP34550W	5yr	$759	$859
9100MB	8ms	7200rpm	512K	XP39100W	5yr	$1139	$1269

FUJITSU **2.5GB IDE DRIVE ONLY $199**

4400MB	8ms	7200rpm	512K	M2954S	5yr	$629	$669
9100MB	8ms	7200rpm	512K	M2949S	5yr	$1049	$1109
WIDE SCSI							
4400MB	8ms	7200rpm	512K	M2954W	5yr	$659	$779
9100MB	8ms	7200rpm	512K	M2949W	5yr	$1089	$1209

We stock a complete line of IDE drives including Toshiba 2.5" IDE Hard Drives!

• REMOVABLES •

	EXTERNAL (Call for Int. or bare price)
IOMEGA *Call about Iomega rebate*	
100MB ZIP w/1 FREE DISK!	$148 [ZIP100]
1GB JAZ w/1 FREE DISK!	$379 [JAZX]
SYQUEST	
1.5GB Syjet, 1 Free disk	$479 [SYJET1.5MAC]
NOMAI	
750MB MCD, SyQuest 270MB compatible, 1 Free disk	$289 [MCD750MACX]

• OPTICALS •

MITSUBISHI	
230MB, 128MB compatible, 1 Free disk	$369 [SSS230M]
FUJITSU	
640MB, 128 & 230MB compatible, 2MB buffer, 1 Free disk	$459 [MAC2513A2XC]
MAXOPTIX	
2.6GB, 650MB & 1.3GB compatible, 3000rpm, 1MB, 1 Free disk	$1629 [MACTAH2.6]
HEWLETT PACKARD	
2.6GB, 650MB & 1.3GB compatible, 3000rpm, 1MB, 1 Free disk	$2169 [MAC2.6HP]

• CD ROM DRIVES •

Toshiba	12X	115ms	256K	Tray	$179 [XM5701XM]
Plextor	12X	105ms	512K	Tray	$305 [PX12TSXM]
Plextor	12X	105ms	512K	Caddy	$345 [PX12CSXM]
Toshiba	15X	99ms	256K	Tray	$209 [XM3801XM]
NEC	16X	100ms	256K	Tray	$229 [CDR1610XM]
Plextor	20X	95ms	512K	Tray	$299 [PX20TSM]

• CD RECORDERS •

SMART STORAGE SOLUTIONS
2x6, 1MB buffer, caddy loading, 5 free disks $409 [SSS2X6CDRM5]
4x6, 512K buffer, caddy loading, 5 free disks $629 [SSS4X6CDRM5]
These CD Recorders include Toast CD Mastering software. Priced as External for Macintosh. Call for internal configuration or bare drive pricing.

• CD RE-WRITABLE •

RICOH
NEW! 2X6 CD Re-Writable w/1 RW disk, & Toast $519 [RO6200SXM]
Now you can Re-write your own CDs with direct overwrite.
2X Write 6X Read Packet write supported.
CDR/W media alone/with drive 5 pack $140/$130 [CDR74W-5] 20 pack $480/$470 [CDR74W-20]

• SCSI TAPE BACKUP •

These tape drives include backup software and 1 FREE TAPE!

HEWLETT PACKARD	
2GB, 4mm, DAT, 12MB/min	$659 [C1534XM]
2-4GB, 4mm, DDS DAT, 42MB/min	$725 [C1536XM]
4-8GB, 4mm, DDS-2 DAT, 60MB/min	$999 [C1599XM]
12-24GB, 4mm, DDS-3 DAT, 120MB/min	$1429 [C1554XM]
24-48GB, 4mm, DDS-2 DAT, 6 tape loader, 88MB/min	$2499 [C1553XM]
SEAGATE	
2-4GB, 4mm, DDS DAT, 48MB/min	$729 [C4324XM]
4GB, TR4 minicartridge, 30MB/min	$439 [TST8000XM]
4-8GB, 4mm, DDS-2 DAT, 48MB/min	$849 [C4326XM]
48-96GB, 4mm, DDS-2 DAT, 12 tape loader, 48MB/min	$2119 [C4586XM]
EXABYTE	
3.5-7GB, 8mm, DAT, 32MB/min	$1375 [EXB8205XM]
7-14GB, 8mm, DAT, 60MB/min	$739 [EXB8700LTXM]
7-14GB, 8mm, DAT, 120MB/min	$1599 [ELIANTXM]
20-40GB, 8mm, AME, 360MB/min	$4409 [EXB8900XM]
70-140GB, 8mm, DAT, 10 tape loader, 60MB/min	$4359 [EXB10HXM]
SONY	
4-8GB, 4mm, DDS-2 DAT, 44MB/min	$895 [SDT5000XM]
4-8GB, 4mm, DDS-2 DAT,90MB/min	$859 [SDT7000XM]
12-24GB, 4mm, DDS-3 DAT,144MB/min	$1119 [SDT9000XM]
32-64GB, 4mm, DDS-2 DAT, 8 tape loader. 90MB/min	$1949 [TSL7000XM]

• MEDIA SALE •

1GB JAZ $87 [JAZC1GIGMAC]
540MB Nomai $55 [MCD540-MAC]
230MB Optical $10 [TJ230]
640MB 3.5" Optical $32 [TJ640]
2.6GB Optical $50 [TJ2.6]
4.6GB Optical $159 [OMDR4.6]
4mm120M tape $20 [DAT120M]
DLT 10-20GB $40 [DLT2]
DLT 20-40GB $99 [DLT4]

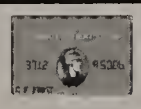
Nomai SyQuest compatible
44MB $29 88MB $31 135MB $22
200MB $50 230MB $27 270MB $41

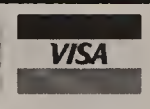
Toray 650MB PD Disks [PD650A]
features a padded case $39

Fuji 10 pack ZIP media [ZIP100C10M]
$135 less $20 rebate = $11.5 per disk

Fuji 2 pack 8mm/160m [DAT8MM160M2]
$39 less $5 rebate = $17 per tape

Since 1987 The Drive Authority
MEGAHAUS





Sales lines open: M-F 8-8 Sat 9-3 CST
http://www.megahaus.com

2201 Pine Drive, Dickinson, Texas 77539
(281)534-3919 FAX (281)534-6580

Prices & specifications subject to change without notice. Shipping charges are nonrefundable. Returns must be in new condition and in original packaging. Defaced items may not be returnable. No refunds on software or special orders (items not listed in ad.) All refunds subject to 15% restocking fee. All trademarks are registered trademarks of their respective companies. Personal checks held for clearance. We reserve the right to refuse any sale for any reason. Bundle price good only if sold at ad price. ©1997 MegaHaus Inc.

Sep 97 MacWorld

Circle 245 on reader service card

Blowout Prices on Mac™

Apple PowerBooks

AS LOW AS $1699!*

PowerBook 1400cs • CPU 0522

Your #1 source for Apple Products!

12X CD-ROM DRIVE!

PowerBook3400c/180MHz/ 16MB RAM/1.3GB Hard Drive/ 12x CD-ROM shown.

PowerBook 3400:

- 180, 200 or 240MHz PowerPC 603e processor
- 16MB of RAM (expandable to 144MB)
- Internal 1.3, 2, or 3GB hard disk drive
- Internal 12X CD-ROM or 6X CD-ROM available
- 256K Level-2 cache

PowerBook 3400c/180MHz
16MB RAM/1.3 GB Hard Drive (does not include CD-ROM Drive, modem or Ethernet connection)
CPU 0577 Was ~~$4499~~ $3799

PowerBook 3400c/180MHz
16MB RAM/1.3 GB Hard Drive/33.6 modem/10Base-T Ethernet
CPU 0578 w/6x CD-ROM Was ~~$4999~~ $4299
CPU 0671w/12x CD-ROM $4499

PowerBook 3400c/200MHz
16MB RAM/2.0 GB Hard Drive/33.6 modem/10Base-T Ethernet
CPU 0579 w/6x CD-ROM Was ~~$5499~~ $4799
CPU 0670 w/12x CD-ROM $4999

PowerBook 3400c/240MHz
16MB RAM/3.0 GB Hard Drive/33.6 modem/10Base-T Ethernet
CPU 0610 w/12x CD-ROM Was ~~$6499~~ $5999

PowerBook 1400cs/117MHz/12MB RAM/750MB HD/11.3"Dual-Scan Display
(Does not include CD-RDM drive)
CPU 0522 Was ~~$2199~~ $1699*

PowerBook 1400cs/117MHz/16MB RAM/750MB HD/6X CD/11.3" Dual-Scan Display
CPU 0523 Was ~~$2499~~ $1999

PowerBook 1400c/133MHz/16MB RAM/1.0GB HD/6X CD/11.3" Active Matrix Display
CPU 0568 Was ~~$3499~~ $3199

6X CD-ROM DRIVE!

PowerBook 1400cs/117 16MB RAM with 6X CD-ROM drive shown.

Apple Power Macs

PRICES SLASHED!

Monitor sold separately.

AS LOW AS $1499

CPU 0570

Power Macintosh 8600/200MHz
- 200MHz PowerPC 604e Processor
- Iomega 100MB Zip Drive
- 32MB RAM (expandable to 512MB)
- 2GB, AV-Capable fast SCSI internal HD
- 12X CD-ROM Drive
- 2MB VRAM

CPU 0573 Was ~~$3199~~ $2999

Power Macintosh 9600/233MHz/ 32MB RAM/ 4.0 GB HDD/12X CD-ROM
CPU 0613 Was ~~$4199~~ $3499

Power Macintosh 9600/200MP/ 32MB RAM/4.0 GB HDD/12X CD-ROM (Includes two 200MHz PowerPC 604e processors)
CPU 0575 Was ~~$4699~~ $4199

PRICES SLASHED!

Power Macintosh 4400/200 shown

Power Macintosh 4400/200MHz
16MB RAM/2.0 GB HDD/8XCD-ROM
CPU 0570 ..... $1499

Power Macintosh 4400/200 Special Edition
32MB RAM/2.0 GB HDD/12XCD-ROM with Microsoft Office and more!
CPU 0611 ..... $1799

ORDER ONLINE! and Get FREE Software!*

http://www.warehouse.com

Chose one of these software packages when you place an online order with MacWAREHOUSE!
*Limit one per customer.

1. Our sales staff is ready to take your order 24 hours a day, 7 days a week.
2. We accept the following major credit cards: Visa, MasterCard, Discover Card/NOVUS, AmEx. Your credit card will not be charged until each item is shipped (no surcharge).
3. CT, IL, NJ, and OH residents add applicable sales tax.
4. Overnight delivery just $3.00 per order up to 3 pounds. For all orders over 3 pounds, shipping is $1.25 per pound or fraction thereof. (Example: shipping for a 4 pound order is $5.00)
5. Place your order for "in-stock" items up to 12:00 midnight(E) (weekdays), and we will ship same day for overnight delivery (barring system failure, etc.).
6. Many of our products come with a 30-Day Money Back Guarantee. All items we sell come with the MacWAREHOUSE 30-Day Guarantee Against Defects.

30-DAY Guarantee Against Defects

30 DAY Money Back GUARANTEE

© Copyright 1997 Micro Warehouse, Inc. MacWAREHOUSE® is a division of Micro Warehouse, Inc. MacWAREHOUSE® and MicroWAREHOUSE® are registered trademarks and Data Comm WAREHOUSE and MacSystems WAREHOUSE are trademarks of Micro Warehouse, Inc. Apple, the Apple logo, Mac and Macintosh are registered trademarks of Apple Computer, Inc. Item availability and price subject to change without notice. We regret that we cannot be responsible for typographical errors. All prices shown in U.S. dollars.

Internet

3 Ways to Order:
1. Call: 1-800-434-3036
2. FAX: 1-908-905-9279
3. Online: http://www.warehouse.com

UPGRADE TO MAC™ OS 8.0

Mac OS 8

Get 5 CDs FREE!* when you buy Mac OS 8.0 now!

5 FREE CDs include Earthlink Internet Access, Marathon, 3000 Mega ClipArt Pack & more. *$2.95 shipping & handling applies. Shipped in promotional packaging. Mac OS 8.0 requires 68040 or PowerPC based machine.

for only $69.95! (CD-ROM)

Item # UPG 0687

12X CD-ROM DRIVES

SUPER FAST!

Plus, get F/A 18 Hornet 3.0 FREE!*

only $199.95!

when you buy a 12X CD-ROM Drive!
Item # BND 1606
For FREE F/A 18 Hornet. Ask for item #AAA 0520

WHILE SUPPLIES LAST!

LOWEST MEMORY PRICES EVER!

1MB SIMMS
Item # CHP 0022

as low as $19.95!

os Systems! as low as $899!

Authorized Catalog Reseller

MacWAREHOUSE EXCLUSIVE!

MOTOROLA

STARMAX 3000/180

- 180MHz PowerPC 603e Processor
- 16MB RAM (expandable to 160MB)
- 1.2GB Internal Hard Drive
- 8X CD-ROM Drive
- Three PCI Expansion Slots
- Keyboard & mouse included

Ask for Item # CPU 0619 **$999!**

While supplies last.

Includes 28.8 Modem!

Monitor sold separately.

Includes a GA BUNDLE oftware and CD titles!

PowerBase Low Profile 180MHz

- 180MHz PowerPC™ 603e processor!
- 16MB RAM (expandable to 160MB)!
- 1.2GB hard drive!
- 12X CD-ROM drive!
- 2MB VRAM graphics on board!
- ADB keyboard and mouse!
- Three fast PCI expansion slots!

PowerBase Low Profile 180MHz
(No Cache/12X CD-ROM)
Item # CPU 0659..... $999

Monitor sold separately.
While supplies last.

180MHz!

ONLY $999!
PowerBase Low Profile 180MHz
Item# CPU 0659

PRICES SLASHED!

UMAX

UMAX C500/140

- 140MHz PowerPC 603e Processor
- 16MB RAM (expandable to 160MB)
- 1.2GB Internal Hard Drive
- 8X CD-ROM Drive
- Two high-speed PCI Expansion Slots
- Extended keyboard & mouse included

Ask for Item # CPU 0641 **$899!**

UMAX C500/180 16MB/1.2GB HD/1MB VRAM/8X CD/256K level-2 cache
Ask for Item # CPU 0672 ..... $949

While supplies last. Monitor sold separately

PowerComputing

Mac OS

12X CD-ROM DRIVE

SUPERmac

100MB ZIP DRIVES

INCLUDES YOUR FIRST DISK!††

iomega

New Everyday Low Price!
Ask for item # DRI 1050
Now only $149.95!

††Zip Tools utility software included on first disk.

Purchase any Jaz or Zip Drive & get Speed Doubler 2 for only $29.95!*
Ask for item # AAP 0388

*Drive must appear on same invoice. Shipped in promotional packaging.

APPLE MESSAGEPAD 2000

Only $949!

162 MHz, 32-bit RISC processor/ 480 x 320 pixel resolution/ LCD display is 20% larger

Ask for item # PDA 0322

Authorized Catalog Reseller

FREE! UPGRADE TO MAC™ OS 8.0

when you buy any Mac OS Computer!

*Free upgrade offer direct from Apple. Upgrade applies to CPU purchases made between 7/1/97 and 7/31/97. Please call 800-335-9258 to get your Mac OS8 CD upgrade. A $9.95 shipping and handling charge applies. Product delivery expected August 1997.

Mac OS8

MacWAREHOUSE®

To order, call toll-free 24 hours a day, 7 days a week **1-800-434-3036**

FREE CATALOG SUBSCRIPTION! Check the appropriate box(es) to receive your FREE 1-year catalog subscription(s) and mail this coupon to: 1720 Oak Street, P.O. Box 3013, Lakewood, NJ 08701

Name _____

Address _____ Apt. _____

City _____ State _____ Zip _____

(Expect to receive your first issue(s) within 4-6 weeks.)

Yes, send me my FREE Power User's Tool Kit. Enclosed is my check for $2.95 to cover shipping & handling. MMW7

MacWAREHOUSE ❑ MicroWAREHOUSE ❑ DataComm WAREHOUSE ❑ MicroSystems WAREHOUSE

For your FREE Canadian Catalog, call toll-free 1-800-603-5139!

Circle 150 on reader service card

Westwood Computers & Networking

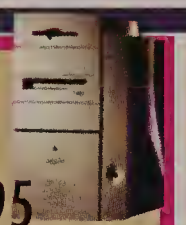
Toll Free (800)761-1999
Tel (310) 235-1780 • Fax (310) 235-1790
http://www.wcn.com

BIG MAC

Macworld EXPO BOSTON — VISIT OUR BOOTH #5065 @ MACWORLD EXPO IN BOSTON 8/6-8/97

CHECK OUR WEB PAGE FOR DAILY SPECIALS

SPECIALS!

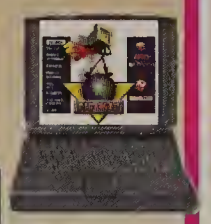


PowerMacs 9600's

200MHz 32/4GB/12XCD/KB...$2695
200MP 32/4GB/12XCD/KB...$3695

PowerMac 7300/180

16/2GB/12XCD/KB...$1770



Powerbook 1400c/133

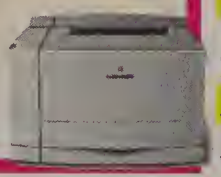
16/1GB/CD.....$2495

Powerbook 1400cs/117

12/750/CD.....$1599

Apple Color Monitor

20" (M850).....$1450



Apple Laserwriter Printer

16/600.....$1795
4/600.....$695

MOTOROLA

Model/MHz	Ram/HD/CD/Modem	Price
3000DT/240	32MB/2.5GB/16X/28.8	$2295
4000MT/200	32MB/2.5GB/8X	$2279
4000MT/200C	32MB/4GB/16X/Zip	$2799

UMAX®

Model/MHz	Ram/HD/CD/Vram	Price
S900L/233	32MB/2.1GB/8X/8M	$3425
S900L/250	32MB/2.1GB/8X/8M/ZIP	$4295
S900L/200DP	32MB/2.1GB/8X/4M	$3659
S900L/250DP	64MB/4GB/12X/8M/ZIP	$6150

PRINTERS

APPLE COLOR 12/660	$5599
APPLE LW 4/600-12/640	$695/1435
APPLE SW 1500	$259
APPLE SW 2200/2500	$395/335
EPSON STYLUS COLOR 800	$439

POWERMAC 9500/9600

9600/233	32/4GB/12xCD/4MB	$2995
9600/233	128/9GB/12xCD/4M	$4395
9600/200MP	32/4GB/12xCD/kb	$3695
9600/200	32/4GB/12xCD/kb	$2695
9500/180MP	32/2GB/CD/ATI	$2795
9500/150	32/2GB/CD/ATI	$CALL

POWERMAC 8500/8600

8600/200	32/2GB/12x/Zip/kb	$2650
8500/180	32/2GB/8xCD/L2	$Call
8100/110	16/2GB/CD	$1795

POWERMAC 7200/7600/7300

7300/200	32/2GB/12x/kb	$2195
7600/132	16/1GB/8xCD	$CALL
7200/120	16/1GB/8xCD	$1199

POWERMAC 4400/6500

6500/300 603e	32/4GB/12CD/33.6	$CALL
6500/275	32/4GB/12XCD/Creative	$2669
6500/250 603e	32/4GB/12X/33.6/ZIP	$2099
6500/225 603e	32/3GB/12X/33.6	$1799
4400/200 603e	32/2GB/12X/33.6	$1799

POWER BOOKS

2400c	NEW	$CALL
3400c/240	32/3GB/CD/33.6	$5350
3400c/200	16/2GB/CD	$4250
3400c/180	16/1.3GB/CD/33.6	$3795
1400cs/117	12/750	$1420
Duo 2300c refurb	8/700	$995

PERFORMA

6400/200	16/1.6/CD	$1125
6360/160	16/1.2/CD/28.8/kb	$1099
5400/180	16/1/CD/KB/mon	$1299

MONITORS

APPLE 15"/15"AV	$375/420
APPLE 1705/1710 17"	$649/850
APPLE 850 20"	$1450
SONY 100SX/200SF	$439/749

APPLE PARTS

1.44 SUPER FLOPPY DRIVE	$159
9500/8100-110 LOGIC BOARD	$650/895
180/200 MHz PROCESSOR	$599/799
233/150 MHz PROCESSOR	$995/199
POWER SUPPLY FOR ALL MAC	$CALL

PowerComputing

PowerTower Pro 250

250MHz604e Full Tower
32/2G/16XCD/8MBIMS
1MB L-2, free upgrade to128MB Ram
$4795

PowerCenter 166MT

166MHz 604 MiniTower
16/2G/8XCD/1MB VRAM
512k CACHE, KEYBOARD
W/15" Color Monitor
$1599 Refurbished One Year On-Site

PowerCenter 150LP

150MHz 604 Desktop
16/1G/8XCD/1MB VRAM
512k CACHE, KEYBOARD
W/15" Color Monitor
$1399 Refurbished One Year On-Site

Software & Add On's

ADOBE PHOTOSHOP 4.0	$349
ADOBE PAGEMAKER 6.5	$349
QUARK XPRESS	$639
YAMAHA 6X4X CDR/Toast	$699
MIRO MOTION DC 20 PCI	$525
4GB HARD DRIVE INT.	$465
ADOBE PREMIER 4.2	$129

1831 Pontius Ave., Los Angeles, CA 90025 or E-Mail us at WCN@Earthlink.net Not responsible for typos.

Fortune 500 • Schools • Government • International Orders, Visa, MC & Amex welcome. Subject to change w/o notice & limited qty. All prices are COD. All other forms of payment are 3% higher. Prices subject to change without notice.

Get the Latest Prices at: http://www.macmarket.com Local 818-708-6388

MacMarket

1-800-905-4622

Quantity Discounts Available Fax: 818-708-6399

Government, Educational and Fortune 1000 Purchase Orders Welcome!

Since 1988

Call for Your CATALOG... FREE RAM Installation - CUSTOM CONFIGURATIONS AT NO EXTRA CHARGE!!

HEY! I heard MacMarket has the best Prices. You Bet we Do!

Quantum Limited Quantities

Atlas II 4.5GB Ultra
7200RPM Fast ..... $729 #H1116

BELL Memory

DIMMS 64BIT•168PIN
8MB ..... $59 #M1720
16MB ..... $85 #M1625
32MB ..... $149 #M1621
64MB ..... $289 #M1619

LifeTime Warranty on all Memory

SIMMS 32BIT•72PIN 60NS
8MB .. $65 #M1598
16MB .. $79 #M1595
32MB $139 #M1604

Powerbook® 1400
8MB #M1310 $89
16MB #M1314 $139
24MB #M1316 $179

Powerbook® 3400
16MB #M1430 $129
24MB #M1859 $189
32MB #M1432 $209
48MB #M1861 $349
64MB #M1853 $499
96MB #M1855 $849
128MB #M1857 $1099

Newer TECHNOLOGY MAXpowr

Upgrade Your 7500, 7600, 85, & 9500 PowerMacs with 604e Processors
180MHz ..... $449* #A4416
200MHz ..... $629* #A4418
225MHz ..... $899* #A4420
360MHz 2 604e 180MHz CPU's $1448 #A4422
400MHz 2 604e 200MHz CPU's $1595 #A4424
*after $150 mail in rebate

NUpowr Powerbook® UpGrades
603e 183MHz ..... $589 #A4566
Comes with 128K L2 Cache, for the 1400 PowerBooks
500 Series Nupowr ..... $669 #A4564
167 MHz Upgrade, 8MB on Board

CardCam Video-InCard ..... $359 #P1036
PC Type II, Accepts either Composite or S-Video

Yamaha

CD Recordable 4x6 w/Toast $699 #E7307

FWB INCORPORATED

JackHam. Ultra Wide PCI Accel. . $349 #H1414
SledgeHam. 8200 PCI-Ultra/W/Diff .. $3199 #H1414
SledgeHam.17400 PCI-Ultra/W/Diff . $5195 #H1418
Hammer DLT 15 Gig ..... $3595 #D2583

The Latest Software Titles

Microsoft Word 6.0.1 ..... $149 #S1300
Microsoft Excel 5.0..... $149 #S1302
Adobe Photoshop 4.0 .... $329 #S1035
Adobe After Effects 3.1 ... $329 #S1055
Adobe Premiere 4.2..... $349 #S1046
Adobe Illustrator 7.0 ..... $249 #S1015

TwinTurbo128M

4MB VRAM . $259 #V9240
8MB VRAM . $489 #V9238
Watch TV on your PCI Mac
Turbo TV ..... $109 #V9345

iXMICRO

Video Editing TRUEVISION®

Bravado 1000(PCI) .... $619 #V9331
Targa 2000 PRO (PCI) $3199 #V9307
Targa 2000 (PCI) ... $2899 #V9200

Performa® 5400 $1325

While Supplies last
All in one design includes 15" display
180MHz 603e,16/1.6GB HD
8xCD/256k L2 Cache
keyboard,mouse
#A1947
Brand New! With 1 Year Apple Warranty!

Power Macintosh®

Power Macintosh® 9600/200MP
32MB 4GB/12xCD/4MB VRAM
New Lower Prices
$3899 #A1672

Power Macintosh® 9600/200MHz
32MB 4GB/12xCD/4MB VRAM
New Lower Prices
$2995 #A1671

Power Macintosh® 8600/200MHz
32MB 2GB/12xCD/Zip Drive
New Lower Prices
Call #A1670

Power Macintosh® 7300/200MHz
32MB 2GB/12xCD/2MB VRAM
New Lower Prices
Call #A1668

Power Macintosh® 7300/180MHz
16MB 2GB/12xCD/2MB VRAM
New Lower Prices
$1949 #A1667

Power Macintosh® 4400/200MHz
16MB 2GB/8xCD/2MB VRAM
New Lower Prices
$1369 #A1680

Power Macintosh® 6500/250MHz
32MB 4GB/12xCD/Zip/Modem
Home Software Bundle
$2159 #A1937

Power Macintosh® 6500/250MHz
48MB 4GB/12xCD/Zip/Modem
Small Business Software Bundle
$2395 #A1943

Power Macintosh® 6500/225MHz
32MB 3GB/12xCD/Modem
Home Software Bundle
$1859 #A1945

PERFORMA® 6360 $999
160Mhz 16MB Ram 1.2GB Hard Drive, 28.8 Fax/Modem #A1680

Technical Support IS FREE

RASTEROPS® SuperScan Monitors

MC600 17 " ..... $599 #M6704
MC611 17 " .22mm .. $729 #M6529
MC20 20" ..... $1269 #M6525
MC801 21" .22mm . $1559 #M6527

SuperScan MC801HR $1749 #M6903

UMAX® Computer Corporation

Thinking Macs??? Think UMAX New Low Prices

UMAX S900L - 604e TOWER CPU's

2-250MHz
64MB 4GB Ultra Raid/12xCD/8MB IMS Internal Zip/100 BaseT/Wide SCSI III
List Price $6,995
after MacMarket instant Rebate
#A1935 $6,195

250MHz
32MB 2.1GB Ultra/8xCD/8MB IMS Internal Zip/100 BaseT/Wide SCSI III
List Price $3,995
after MacMarket instant Rebate
#A1644 $3,545

233MHz
32MB 2.1GB/8xCD/ 8MB IMS Video Card
List Price $3,195
after MacMarket instant Rebate
#A1648 $2,845

2-200MHz
32MB 2.1GB/8xCD/ 4MB IMS Video Card
List Price $3,995
after MacMarket instant Rebate
#A1646 $3,095

200MHz
32MB 2.1GB/8xCD/ 4MB IMS Video Card
List Price $2,795
after MacMarket instant Rebate
#A1639 $2,495

J700-180MHz
24MB 2.1GB/8xCD/2MB IMS Video Card,Modem
List Price $1,995
after MacMarket instant Rebate
#A1634 $1,795

C600x 280MHZ 603e, 80MHz 8us- Call for Details
C600x 240MHZ 603e, 80MHz 8us- Call for Details

Macintosh® PowerBook®

1400CS16MB/750MB/6xCD/117MHz .... #A1722 ..... $1799
1400CS20MB/750MB/8xCD/117MHz .... #A1933 ..... $1829
1400C16MB/1-GB6xCD/133MHz ..... #A1726 ..... Call
3400C16MB/1.3GB/6xCD/180MHz . #A1732 ..... $3899
3400C16MB/2-GB/6xCD/200MHz .... #A1734 ..... $4399
3400C16MB/3-GB/12xCD/240MHz . #A1736 ..... $5399

APPLE Monitors & Printers

Multi-Scan 15" $359 #M6558
Multi-Scan 15AV $389 #M6909
Multi-Scan 1705 $629 #M6638
Apple Vision 850 . Call #M6579
Multi-Scan 20" $1449 #M6564

Laser16/600PS . $1899 #P3250
Laser 12/640PS $1499 #P3248
Laser 4/600PS ... $799 #P3256
StyleWriter 1500 $239 #P3369
StyleWriter 2500 $279 #P3367

MOTOROLA

Starmax 5000 Call for details
5 Year Warranty on all Starmax Computers

3000 200MHz Desktop Basic S/W 16MB 1.2GB/8xCD/7.6 Sys. $1349 #A1061
3000 200MHz Mini-Tower SOHO S/W 32MB 2.5GB/8xCD/Modem $1739 #A1052
3000 240MHz Mini-Tower SOHO S/W 32MB 2.5GB/8xCD/Modem $2195 #A1054
3000 240MHz Mini-Tower Enterprise S/W 32MB 2.5GB/16xCD/Zip $2349 #A1060
4000 160MHz Mini-Tower SOHO S/W 32MB 2.5GB/8xCD/Modem $1849 #A1056
4000 200MHz Mini-Tower Basic S/W 32MB 2.5GB/8xCD/2MB Vram $2495 #A1063

PINNACLE MICRO

THE OPTICAL STORAGE COMPANY
APEX 4.6GB #E7236 $1399
Magneto Optical

ViewSonic®

P815 21" Display .25mm $1549 #M6915
17GA 17" W/Speakers $649 #M6760
PT775 17" Display .25mm $769 #M6911

miro

miroMOTION DC 20 $589 #V9250
miroMOTION DC 30 $869 #V9347
miroMOTION DV 100 $529 #V9349

EPSON #P3488

Stylus 3000 $1749
17"x 22", 1440 DPI Color
Stylus Color 800 1440DPI $429 #P3483
Stylus Color 600 1440 DPI $299 #P3485

UMAX®

The Magic of Color
PowerLook II
36 bit color
600x1200DPI $1274
Free Trans. Adapter #S8520
Photoshop Full, Binuscan Software
Astra 600S PhotoDeluxe $255 #S8921
Astra 1200 Full Photoshop $629 #S8922

Polaroid

SprintScan35/es
2700DPI, Fast Scanning
#S8547 $1429
SprintScan 35 LE . $709 #S8555
SprintScan 35+ .. $1695 #S8550
SprintScan 45 .. $8195 #S8543

GLOBAL VILLAGE

Teleport 56K X2 . $219 #F8195
Teleport 56K Flex . $219 #F8193
PowerPort PC 33.6 $229 #F8150
PowerPort PC Pro 33.6 $329 #F8147

DAYSTAR DIGITAL

Dual Processing Upgrade Cards
nPOWR 400+ $1369 #A4514
nPOWR 450+ $1649 #A4509
for PPC 7500,7600,8500,9500,UMAX Clones

AGFA

ARCUS II #S8482
36 bit color $1479
600x1200DPI
FREE Trans. Adapter
Photoshop Full, FotoLook, Foto Tune Lite
StudioStar LE . $769 #S8493
600 x 1200 dpi 30 bit color scanner

Nikon ELECTRONIC IMAGING

SuperCoolScan #S8503 $1629
Single Pass RGB, 2700DPI, Scans Positive, negative, Color or monochrome 35mm

SONY Trinitron® Displays

100SF ..... $429 #M6590
200SX ..... $679 #M6593
200SF ..... $759 #M6584
300SF ..... $1595 #M6586

HEWLETT PACKARD

870cxi 600dpi $399 #P3350
6MP 600dpi ..... $899 #P3348
4MV 11"X17" $2295 #P3235
1600CM color $1799 #P3410

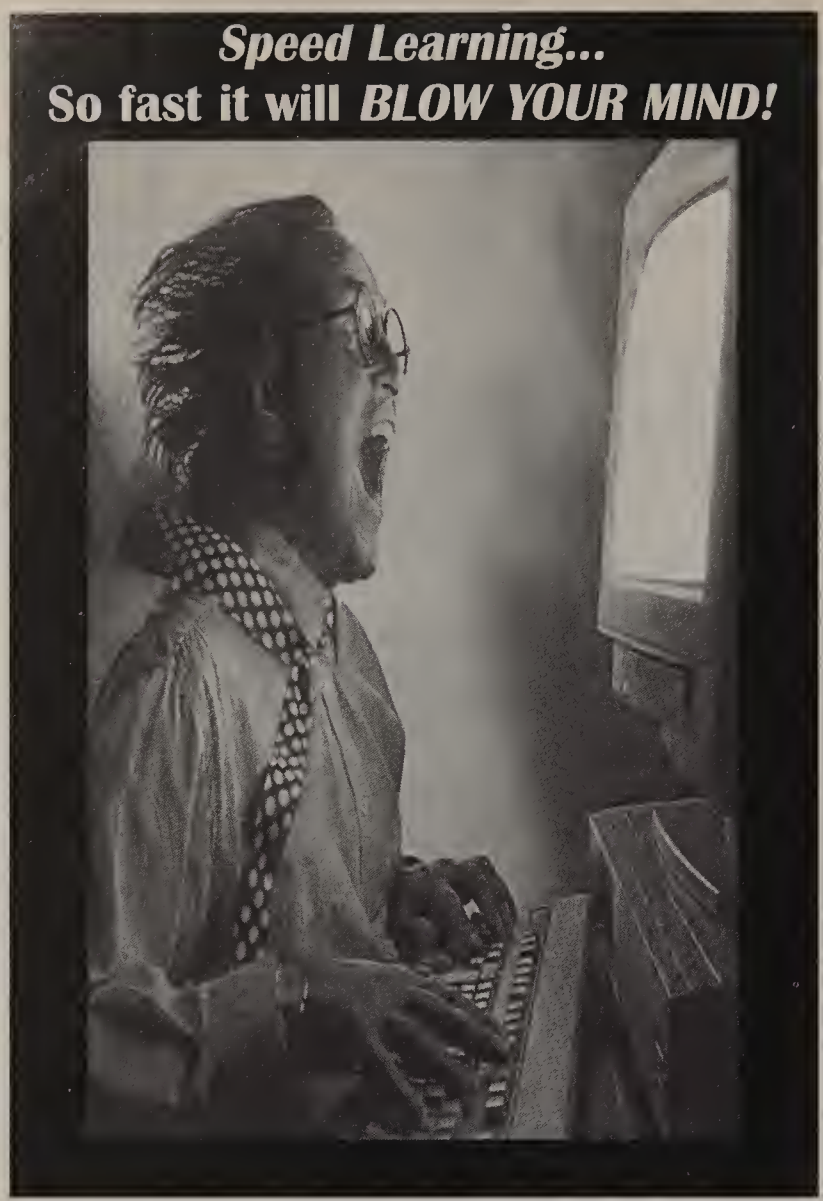
MasterCard VISA DISCOVER

We are located at: 6924 CANBY AVE. UNIT#104, RESEDA CA. 91335

All Prices reflect a Cash Discount. Any other method is 2% higher. Prices are subject to change without notice. All Returns are subject to restocking fee, must be in original package, condition & needs an RMA#. No Refunds on Labor or Freight Charges. We accept Visa, MasterCard, Discover & American Express. P.O.s are accepted from U.S. Gov't, Schools & Corporations. Call for Details. Not responsible for typographical errors. Mon-Fri (Pacific) 8AM - 6PM

See us at: http://www.macmarket.com Local 818-708-6388

Circle 258 on reader service card



PRODUCTION = PROFIT

We **guarantee** increased production with computer training from Mac/Windows Academy

Come see us at MacWorld Boston Booth #5818

10th Anniversary Sale
Many of our Best Titles are Only $35 per Volume!

- Each volume is approximately 2 hours in length and comes with a time coded index for quick and easy access
- All Video and CD-ROM volumes carry a 30 day money back guarantee
- Upgrades available for new software version releases at $19.95 per volume
- Volumes may be ordered individually or as a series

Mac/Windows Academy

100 East Granada Blvd Dept SP-919
Ormond Beach FL 32176-1712
Phone 904.677.1918 or 800.527.1914
Fax 904.677.6717
http://www.macacademy.com

Titles this column are only $59 per volume

software title	# of volumes in series: Mac Video	Mac CD-ROM	Windows Video	Windows CD-ROM
Access			6	
After Effects	4	4		
ClarisWorks	6	6	6	
Director	5		5	
Excel	5	5	5	
FileMaker Pro	5	5	5	5
FreeHand	6	6		
Illustrator	6	6	6	6
Mac Operating System	4	4		
Mac Troubleshooting	3			
MiniCad	2		2	
PageMaker	6	6	6	6
Photoshop	10	10	10	10
PowerPoint	2	2	2	2
QuarkXPress	4		4	
Quicken	2	2	2	2
Windows 95			4	
Windows NT			6	
Word	6	6	6	6

Titles this column are only $35 per volume

software title	# of volumes in series: Mac Video	Mac CD-ROM	Windows Video	Windows CD-ROM
Design & Layout	1		1	
Desktop to Pre-Press	2		2	
Digital Cameras	1			
FrameMaker	4	4	4	
HyperStudio	2		2	
Infini-D	3			
LogoMotion	1			
Lotus 1-2-3	3		4	
MacProject Pro	4			
Microsoft Project	4		4	
Microsoft Works	5		4	
Multimedia	1		1	
Online Services	4		5	
PageMill	2	2		
Painter	4			
Peachtree Accounting	4			
Persuasion	2		2	
Premiere	3		3	
QuickBooks	3		3	
QuickTime	1			
SiteMill	1	1		
Scanning	1		1	
WordPerfect	6		6	

UNITED KINGDOM The Pleasaunce Buckenham Road Attleborough NR17 2LZ 0181.445.5225
AUSTRALIA 18 Kilgerron Court Narre Warren Victoria 3805 03.9705.1066

Circle 106 on reader service card

YOU GET THE DISC FREE

when you subscribe and save 60%

Macworld

Macworld Clip Art CD containing an extensive collection of clip art images, digital stock photos and fonts. FREE!

JOIN US and GET IT ALL:

❑ One year—12 issues $24.00. **SAVE 60%!**
❑ Two years—24 issues $39.97. **SAVE 67%!**

(PLEASE PRINT)

NAME

COMPANY

ADDRESS

CITY STATE ZIP

E-MAIL

❑ Bill Me. ❑ Payment Enclosed.

Check us out at www.macworld.com

Please allow 6-8 weeks for delivery of your first issue. Foreign orders add $70 postage. Mexican and Canadian orders add $18 postage.

4FQV4

FREE Clip Art CD!

NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 1167 BOULDER CO

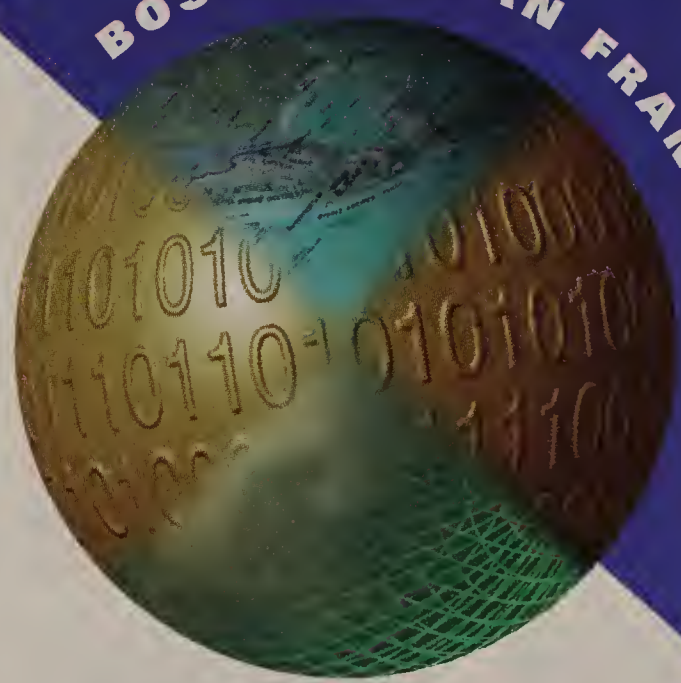
POSTAGE WILL BE PAID BY ADDRESSEE

Macworld
SUBSCRIPTION DEPARTMENT
PO BOX 51666
BOULDER CO 80323-1666

MACWORLD EXPO

Unleash the POWER of your Macintosh

BOSTON & SAN FRANCISCO



With so many products available to boost performance and creativity, your Mac has never had more potential than it does today. See the best and latest of these enhancements at MACWORLD Expo/Boston!

The product offerings at retail stores are no match for the breadth of choice you'll find at MACWORLD Expo. Catalogs may offer variety, but no opportunity to see demonstrations or ask questions. Only MACWORLD Expo lets you experience the full scope of Mac computing, with thousands of solutions for:

- Web site design and Internet navigation
- publishing, entertainment and multimedia
- networking, enterprise-wide connectivity, and intranets
- education, R&D, research
- business and telecommuting

The Mac universe is 60 million users strong. Rub shoulders with thousands of the most innovative, ingenious, and committed users at MACWORLD Expo. Network at special interest areas and pavilions that are free to all attendees. Learn from the experts... keep abreast of trends... maximize your Mac investment in more than 80 conference sessions. MACWORLD Expo opens your mind to new horizons accessible only through your Mac.

See us on the WWW at: http://www.mha.com/macworldexpo/ or call: 800-645-EXPO

INQUIRE TODAY FOR MORE INFORMATION ON MACWORLD EXPO.

Macworld EXPO

Please send more information on MACWORLD Expo

❑ Boston ❑ San Francisco

❑ Attending ❑ Exhibiting

MCW

Name _____

Title _____

Company _____

Address _____

City/State/Zip _____

Phone _____ Fax _____

email _____

Mail to: MHA Event Management, 1400 Providence Highway, P.O. Box 9127, Norwood, MA 02062. Or Fax to: 617-440-0357

THIS IS NOT A REGISTRATION FORM.

PRODUCT INDEX

Category	Page No.
Business Operations	**200-201**
Bar Code	
CD Production	
Inventory Management	
Print Utility	
Video/Display	
Communications/ Networking	**206**
Cross Platform	
Education/ Entertainment	**202-205**
Astrology	
Discount Software	
Games	
Music	
Religion	
Graphics	**202, 206**
Clip Art	
Digital Art	
Translation	
Memory & Upgrades	**225-230**
Memory Upgrade	
Peripheral Products	**206-207**
Cables	
Digital Media	
Magnetic Media	
Software Publishing	
Services	**230-231**
Color Printing	
Data Recovery	
Digital Production	
Repair	
Systems & Peripherals	**208-224**

Ad Trafficking Coordinator:
Brian Mullin 415.267.1735
brian_mullin@macworld.com

Account Managers . .800.888.8622
Carol Johnstone . .415.978.3152
carol_johnstone@macworld.com
Shannon Smith . . .415.974.7414
shannon_smith@macworld.com
Niki Stranz 415.978.3105
niki_stranz@macworld.com

DTP Coordinator:
Clayton Haberman 415.978.3132
clayton_haberman@macworld.com

Boost the printing power of any application

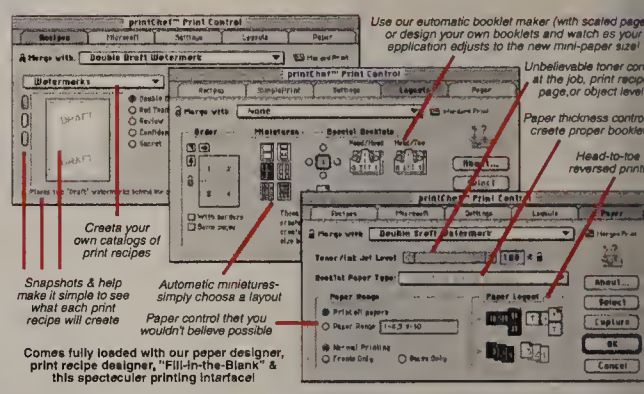
Now, the makers of
LaserMerge Electronic Paper
August Macworld ★★★ November MacUser ★★★★ January MacHome ★★★★½

bring you the most powerful & most easy-to-use printing software in the world...

New! available in June 97

printChef

Spices up any application's printing...



Comes fully loaded with our paper designer, print recipe designer, "Fill-in-the-Blank" & this spectacular printing interface!

You can just feel the power as printChef does all this for any application and on any printer...

- Create new paper sizes
- Control toner & ink-jet level
- Watermarks (at many levels)
- "Variable data" printing
- "Variable image" printing
- Preview printing with zoom
- Booklets with built-in "page creep"
- Accumulate print jobs into one fax, booklet, or printing
- Flesh print to PostScript 10x faster
- Dump a database through a form
- Fill in forms with "Fill in the Blank"™
- Create your own multi-ups
- Make full or partial label layouts
- Two cover pages
- Front-to-back, range, & collated prints
- PS Level 2 forms caching
- Stamp different images for each customer, all from one print recipe
- Print logging with security & reports
- Create any bar code from one font
- Serialization
- Sign letters & faxes electronically
- Imports EPS & PICT images
- Control print resolution
- 38 Print-time text commands & 100 database commands
- You can move, rotate, colorize, clip, scale, & duplicate each object & page to your design...

and use this power to make your own letterheads, business cards, invoices, name plates, labels, badges, envelopes, and much, much more...

To boost the printing power of any application, call (800) 648-6840 or try our demo at www.mindgate.com

Introductory priced at $45
...so that everyone can make their printer sizzle right now!

60-day money-back guarantee

Installs in English, French, German, and Spanish

printChef is a print extension that sits between any application & any printer driver... It uses Print Recipes that you design to control any application's output...

System 7+ required! For 680x0 & any PowerMac. Works with ANY printer & ANY application, printChef's miracles require only 32K of memory. QuickDraw GX is NOT required!

MindGate, LaserMerge, Electronic Paper & their logos are registered trademarks, printChef, its logo, & Fill-in-the-Blank are trademarks, & "This is the Button You Push" is a servicemark of MindGate Technologies.

List Price: Base unit $95 Net. $15-$25/unit
Worldwide: (615) 937-6800
Fax Orders: (615) 937-6801

MindGate® Technologies, Inc.
164 Oliver Smith Road
Flintville, TN 37335-5335

Order Direct
VISA
or thru MacWarehouse 800-255-622

CIRCLE 517 ON READER SERVICE CARD

IF WE DON'T SELL IT, IT'S NOT WORTH LOOKING AT.

PANELIGHT IS YOUR ONE STOP SHOP FOR ALL LEADING BRANDS • SALES, RENTALS, & LEASES • MONEY BACK GUARANTEE.

PANELIGHT OFFERS THE BEST IN SELF-CONTAINED LCD PROJECTORS, PANELS AND ACCESSORIES FOR PC'S, MAC'S AND HIGH-RES WORKSTATIONS FROM THE WORLD'S LEADING MANUFACTURERS: PANASONIC, EPSON, IN FOCUS, TOSHIBA, PROXIMA, NEC, NVIEW, POLAROID AND OTHERS.

Panelight DISPLAY SYSTEMS, INC.
CALL THE EXPERTS AT PANELIGHT DISPLAY SYSTEMS, INC.

IT'S OUR BUSINESS TO ENSURE THAT YOUR BIG IDEAS GET THE ATTENTION THEY DESERVE – NO MATTER WHAT THE VENUE. WE INTIMATELY KNOW AND SELL THE LEADING BRANDS. WE CAN RECOMMEND WHAT FITS YOUR SPECIFIC NEEDS.

CALL NOW FOR OUR FREE, HIGHLY INFORMATIVE CATALOG OF PC VGA/SVGA, MAC, VIDEO, AND WORKSTATION SOLUTIONS. MOST PRODUCTS CAN BE DELIVERED OVERNIGHT, AND COME WITH A MONEY-BACK GUARANTEE. SO, WHY LOOK ANYWHERE ELSE?

CALL PANELIGHT TODAY!

CALL PANELIGHT FOR OUR FREE CATALOG: 1-800-726-3599.

MON.-FRI., 6:30AM-5:30PM P.S.T.
24-HR. FAX: 415-986-3817
OR E-MAIL: SALES@PANELIGHT.COM

HTTP://WWW.PANELIGHT.COM

PANELIGHT DISPLAY SYSTEMS, INC.,
P.O. BOX 190940, SAN FRANCISCO, CA 94119.
OR CALL 415-772-5800.

CIRCLE 481 ON READER SERVICE CARD

CURRENCY & LOCAL LANGUAGE CONVERSION
DB:$ Advantage Systems™
DB SOLUTIONS, INC. • SINCE 1986
929 SIR FRANCIS DRAKE • KENTFIELD, CA.
RECEIVABLES • INVENTORY • INTEGRATED ACCOUNTING
SUPPORTING
RETAIL, WHOLESALE, SERVICE ORGANIZATIONS
Barcode Scanners & Printers
Barcode Labels ~ Cash Drawers
888/461.9501 • 415/461.9500
http://www.posbydbs.com • FAX: 415/461.9501
CIRCLE 415 ON READER SERVICE CARD

Bar Coding
Call us for Info
• Portable & Non-Portable Readers
• Radio Frequency Readers
• PostScript Bar Code Fonts
800-345-4220
WORTHINGTON DATA SOLUTIONS

BAR CODE SOLUTIONS
• LABELING SOFTWARE
FREE EXPERT CONSULTATION
• BAR CODE FONTS
FREE LIFETIME TECHNICAL SUPPORT
• SCANNERS/LASERS
MONEY-BACK GUARANTEE
• GRAPHIC UTILITIES
UPC/EAN, CODE 39, ITF, POSTNET, 2-D
International Bar Code Expertise
300,000 Customers Worldwide
4½
"This is the best product of it's kind, and it's reasonably priced too."
– MacUser on PrintBar For Macintosh
Bear Rock TECHNOLOGIES
800·232·7625
916·672·0244 FAX: 916·672·1103
Visit Our Website At:
www.bearrock.com

MAC & NEWTON BAR CODE SPECIALISTS
800-988-1914
www.inpath.com
• Mobile Wand & MobileScan for Newton
• Easy Plug and Play Cross Platform - Mac & PC's
• Wireless and Portable Solutions
• CCD / Laser / Wand Readers
• Fonts & Software / Bar Code Labels & Printer
• Sun & Dec Bar Code Solutions
• Corporate and School P.O.'s Welcome
Int'l: 415-325-0379 Fax:415-325-1779
InPath DEVICES

Point of Sale
Inventory Management
POS•IM™...
the Point of Sale leader!
• Easy to Use
• Intuitive
• Powerful
Credit Card and Leasing Options Available!
FREE Catalog!
(800) 409-7678
Ensign SYSTEMS INC

POINT OF SALE
INVENTORY CONTROL
• Retail
• Rentals
• Service
• Manufacturing
• Multi Location
Bar Code/Magnetic Stripe Readers
Receipt Printers • Cash Drawers
Credit Card Auth.& Deposit Software
Download Demos and Interactive Catalog
at our Web Site: http://www.posdirect.com
call, fax, or e-mail for a FREE CATALOG
(800) 622-7670 sales@posdirect.com
(618) 985-8237 TEL • (618) 985-3014 FAX
Dealer Inquiries Welcome
30 day MBG
P.O.S. DIRECT
CIRCLE 466 ON READER SERVICE CARD

BAR CODE PRO™
Create EPS graphics for your desktop publishing documents. Call for a free demo disk and get the information you need to make an intelligent purchasing decision for Mac or Windows.
800.619.0399
718.499.6293
or fax
718.768.3997
http://www.snx.com
SYNEX
CIRCLE 450 ON READER SERVICE CARD
See Us at Macworld Expo: Booth #5059

"A Macworld never goes by without me checking to compare prices. I always look to see if what I need is there."
-Owner
Computer Consultants
Macworld SHOPPER

Newton® Joins the Mac-Barcode® Family!
One Stop Shopping with Friendly Support from the Experts
Mobile
Fast
Accurate
Simple
Newton® Walk-About™
Mac-Barcode ProLabel Software
SmartLaser/SmartScanner/SmartPen
Thermal Transfer Printer
Call for Literature & Free Demo Disk
The Mac-Barcode Co.
800-733-7592
http://www.mac-barcode.com
CIRCLE 562 ON READER SERVICE CARD

Software Blowout!!!
Tel:1-800-714-4381

Microsoft
MS Office 4.21 (Word, Excel, Powerpoint) $275
MS Word 5.0/6.01 $75/150.
MS Excel 5.0 $150
MS Powerpoint 4 $150
MS Project 4.0 $250
MS Office Win 97 $295

Metatools
Mai's PoweTools 3 $99
Bryce 2 $135
Final Effects 3.0 $375
Audio Effects $375
Convolver 1.0 $90

Adobe
Photoshop 4.0 $335
Pagemaker 6.5 $299
Illustrator 6.0 $245
Premier 4.2 $335
After Effects 3 $350
Framemaker 5 $350
Acrobat 3.0 $90
Streamline 4/Persuasion 4.0 $99/199
After Effects Studio Bundle call
Pagemill $79

Macromedia
Director 5 (w/ Shockwave) call
Macromedia Studio call
Freehand 7.0 / VectorEffects) $235
Fontographer 4.1 $200
XRes 2 $150
Extreme 3D $250
Freehand Graphic Studio $299
SoundEdit 16 Deck II $275

Claris Filemaker Pro 3.0 $150
Fractal Design Painter 4.0 $235
Ray Dream Studio 4.1 $220
Fractal Design Detailer $199
Expression 1.0 $199
Live Picture $390
Specular Infini-D 3.5 $240
Adobe Silemill $185
Canvas 5 $255
Extensis PageTools 2.0 $85
Extensis Fetch 1.5 $85
Corel Draw $175
Corel WordPerfect call
Truevision Targa 1000/Pro $1850/$1999
Truevision Targa 2000/Pro $2900/$3200
Insignia Softwindows 3 /W3.11 $245
Insignia Softwindows 3/win95 $280
Virtus Alien Skin 1.0 $49
Intuit Quicken call
Now up to date 1.5 $55
Strata call

Software Mart
Tel: 1- (800) 714-4381
1- (818) 346-6350
Fax: 1- (818) 346-1890
Bus. Hours: M-F 9:00-6:00 PM PST
Visa, MC, Discover, Am Ex
Prices valid while supplies last.
Prices are subject to change without notice.
Call for items not listed.
CIRCLE 448 ON READER SERVICE CARD

Practica Musica™ 3

Your Personal Music Tutor!

"The best music education program for the Mac" *(–MacUser)* is now available in Solo, Family, and Site editions. (retail $99, $140, and $450). The most complete music training package for both beginners and advanced students.

MW ★★★★

A LITTLE Kidmusic

NEW! Fun music learning and entertainment for kids. Tap keys to play with automatic accompaniment, play rounds, learn pitch and rhythm notation, write or record tunes. Expandable library of traditional songs. $75

See us at the Macworld Expo Bayside 336

ARS NOVA • (206) 889-0927 • (800) 445-4866
FAX (206) 889-0359 • www.ars-nova.com

CIRCLE 484 ON READER SERVICE CARD

Astrology software

ACCURACY SPEED BEAUTY

TCR

CALL 800-827-2240
TIME CYCLES RESEARCH
375 WILLETTS AVENUE
WATERFORD, CT 06385
WEB: HTTP://WWW.TIMECYCLES.COM
E MAIL: ASTROLOGY@TIMECYCLES.COM
FAX:(860) 442-0625

CADMOVER v.5

What good is a built in translator if it doesn't work?

You've worked hard and now it's time to use those files in another program. You try to import them & all you get is garbage. Not with CADMOVER. For over ten years we've been helping people beat their deadlines, no re-drawing, no touch-ups.

File formats: DWG, DXF, EPSF, PICT, CGM, IGES, HPGL, STL, MiniCAD DDES2, etc... Internal Features: scaling, 2D/3D views, font mapping and more. With 17 decimal place accuracy redrawing is a thing of the past.

KANDU software corporation

voice 800-579-2244 • fax 540-839-3489 • www.kandusoftware.com

CIRCLE 402 ON READER SERVICE CARD

Graphics WAREHOUSE

FULL-BLEED TABLOID COLOR

LOW-PRICED AT ONLY $4599

ColorMasterPlus XF

Regardless of your company's size this thermal printer will give you the professional-quality output you need. It does it quickly, easily and economically.

800•896•0975

CIRCLE 419 ON READER SERVICE CARD

NEW AMERICAN STANDARD

The most literally accurate Bible…
…in the English language

BIBLE MASTER™
Lockman Software
For Windows™ & MAC®

NEW

Ask about our new BibleMaster Bundle for only $49.95 on CD-ROM.

Don't have a CD-ROM drive?
Ask about our two Bundles available on disk.

American Bible Sales
P.O. BOX 5158, FULLERTON, CA 92838
1-800-535-5131
www.gospelcom.net/lockman

The Standard of Biblical Excellence… NASB

CIRCLE 537 ON READER SERVICE CARD

MUSIC for the MAC

We sell the full range of music products for the Mac. Hard Disk Recording Specialists

Best prices & customer support in the business!

MacBEAT
1314 Rufina Cr. Ste. #A4
Santa Fe, NM. 87505

www.macbeat.com
FREE CATALOG
☎ 505-473-3433
Fax 505-473-4647
1-800-MAC-BEAT

Never before

have the best children's & fantasy illustrations from the Golden Age of books been available on your desktop—High Res and Royalty Free! 100 images of classic nostalgia are on each CD ROM for both Mac and PC for only *$149.00 per disk* (plus shipping).

Featuring art by Maxfield Parrish, Arthur Rackham, Jesse Willcox Smith, N.C. Wyeth and many more!

"Stunning Images!"—John C. Dvorak

Images are 72 dpi TIFFs for preview and 300 dpi RGB JPEGs for print.

Call toll-free 1-888-229-1377

Order both CDs and receive $50 off!

GOLDEN PAGES ILLUSTRATION

To see more: www.airandsky.com

CIRCLE 421 ON READER SERVICE CARD

SOFTWARE BLOWOUT

ACI US
4D SERVER 1.5 ..... $869

ADOBE
PageMaker v6.5 $439
Photoshop v4.0 $439
ACROBAT v3.0 ..... $179
AFTER EFFECTS v3.1 ..... $569
ILLUSTRATOR v7.0 ..... $319
PERSUASION v4.0 ..... $233
PREMIERE v4.2 ..... $419

CLARIS
FILEMAKER PRO v3.0 ..... $159
FILEMAKER PRO v3.0 SERVER $819

COREL
CORELDRAW SUITE v6.0 ..... $339
WORDPERFECT SUITE 3.51 ..... $139

FRACTAL DESIGN
RAY DREAM STUDIO v4.1 ..... $259

INSIGNA SOLUTIONS
SOFTWINDOWS 95 4.0 CD MAC $1809

MACROMEDIA
Director v 6.0 Multimedia Studio $849
Freehand v7.0 w/ Vector Effects $339
AUTHORWARE INTERACTIVE STUDIO V3.5 ..... $1809
DECK II V2.5 DIGI AUDIO WRKSTAT $259
DIR. MMEDIA STUDIO V2.0 W/ DIR 5.0 ..... $819
DIRECTOR V5.0 W/ SHOCKWAVE $755
EXTREME 3D 2.0 ..... $349
FONTOGRAPHER v4.1 ..... $285
FREEHAND 7 ..... $339
FREEHAND GRAPHIC STUDIO v7.0 ..... $419

SOUNDEDIT 16 v2.0 ..... $239
SOUNDEDIT 16 PLUS DECK II $325
XRES v3.0 ..... $349

MICROSOFT
Office v4.21 $279
Excel v5.0 $185
Word v6.01 $189
FOXPRO v2.6 PRO $389
POWERPOINT v4.0 ..... $279
PROJECT v4.0 ..... $399
VISUAL FOXPRO v3.0 PRO ED $429

NISUS SOFTWARE
NISUS WRITER $139

QUARK
QUARK XPRESS 3.3.2 ..... $669

STRATA
STUDIO PRO v1.5 / v1.75 ..... $819/739
VISION 3D v4.0 ..... $219

PERIPHERALS

OKIDATA
OL1200 POSTSCRIPT II 12PPM 6MB $799

HEWLETT PACKARD
DESKWRITER 600 ..... $139
LASERJET 4MV/5SIMX $2519/3345
LASERJET 5M COLOR $4745
LASERJET 5M/6MP $1479/859
SCANNER 4C/4S/5P $799/179/399
DESKJET870 CXI $465
DESKJET340C/1600CM $259/1849
LASERJET 6LXI/6PXI $369/715
DESIGNJET 755CM $7679

PAGE COMPUTER
(888) 444-4845
4665 MELROSE AVE, L.A., CA 90029
(213)665-7777 FAX:(213)660-0444
LOWEST PRICES

CIRCLE 429 ON READER SERVICE CARD

www.macworld.com/buyers/shframed.htm

Mac shopper

Want bargains online?

Bookmark the Mac Shopper at:

Macworld Online

Contact Macworld on how to advertise.
(800) 888-8622

STUDENT SOFTWARE DISCOUNTS!

Save up to 75% OFF the Most Popular Software Available!

BUSINESS/MEDICAL

Corel WordPerfect Suite 3.5

A market-leading wordprocessor at a price you can't refuse! Includes: ***WordPerfect, Netscape Navigator, MasterJuggler Pro, 150 fonts, 5,400 clipart images*** *and* ***200 photos!*** *(non-upgrdaeable)*

Includes electronic documentation.

SRP $199 **$39.98**

Fractal Design 3D Suite

Includes 3 powerful programs in one superb 3D package. With ***Ray Dream Studio 4.1, Detailer*** *and* ***Poser 2*** *you can illustrate, model, pose, surface and animate your 3D creations.*

$199.98

Painter 5 Power Tools Bundle

Gimme Five! NEW ***Painter 5.0*** *revolutionizes the world's best-selling paint software with hundreds of new features. Hundreds of new plug-in brushes, new dynamic floaters, new tear off tools and new imaging effects gives you the world's greatest art program on the desktop. Bundled with* ***Kai's Power Tools*** *3, the best-selling plug-in filters for Painter, Photoshop & others.*

Combined SRP $598 **$299.98**

WordPerfect/FileMaker Pro Bundle

Corel WordPerfect Suite 3.5* *(see description above) bundled with* ***FileMaker Pro 3.0****, one of the leading solutions for the database publishing on the Web. Also the only relational database application designed to help you easily manage and share information.*

*(*non-upgrdaeable - Electronic documentation.)*

Combined SRP $398 **$149.98**

Director 6.0 Multimedia Studio

The Director 6 Multimedia Studio includes not only ***Director 6****, the industry standard for multimedia authoring and production, but also* ***Extreme 3D*** *for 3D graphics and animation,* ***SoundEdit 16*** *for audio production, and* ***xRes*** *for image editing. Only Macromedia offers the real added value of these high-performance, fully integrated tools.*

SRP $1995 **$699.98**

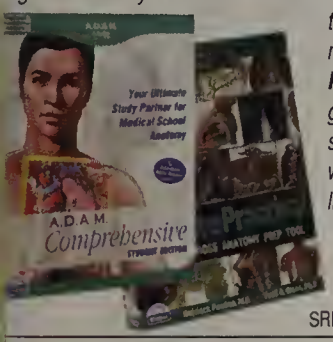
FreeHand Graphics Studio 7

FreeHand 7 *has the power you need to develop everything from simple illustrations to complex designs with a minimum of effort. Also includes* ***Extreme 3D*** *(3D modeling, rendering & animation),* ***Fontographer*** *(font development) and* ***xRES*** *(image editing).*

SRP $995 **$198.98**

A.D.A.M. Anatomy Suite

A great anatomy bundle!! Includes ***A.D.A.M Comprehensive****, the ultimate study partner for medical school anatomy and* ***Practice Practical****, the graduate & undergraduate study of human anatomy that will help prepare you for your lab practical examinations.*



SRP $699 **$175.00**

ElectricImage Broadcast

Just for you - the animator working in television and multimedia! All the great features, quality and unrivaled rendering speed, designed for broadcast resolution output. Render at warp speed!! ***Bonus!! - FREE 3D MODELER**** *- includes fantastic materials & texture controls which can be rendered at resolutions up to 32K by 32K!*

*Shipped direct from ElectricImage.

Combined SRP $3490 **$1349.00**

Strata StudioPro 2.1

This professional 3D design & animation software gives you in-context modulers so your extruding, lathing, sweeping and more are all performed in the main modeling window. Everything is time variable, so everything can be easily animated on the fly!

SRP $1195 **$549.98**

We have the widest software selection available! Thousands of titles available!

Call to receive a FREE Student Software Guide

(40 page color catalog)

Instructors:
Call to receive a FREE Classroom Kit (box of catalogs, display & posters)

Journey will not be underpriced!

Available to qualified students, teachers, staff & schools.
Academic ID required with order.

OFFER: MW997

Check out our weekly web specials:

www.JourneyEd.com

3D EYE • ADAM • Autodesk • Borland • Claris • Corel • Digimation
ElectricImage • Fractal • Lightscape • Lotus • Macromedia • Microsoft
Newtek • Specular • Strata • Symantec • Umax • Wacom • and many more!

Windows Software Also Available!

AutoCAD Release 14 Bundle*	$1188.98
3D Studio MAX 1.2 with Character Studio*	$1188.98
AutoCAD Release 13 with AutoVision (non-upgradeable)*	$348.98
LightScape LVS 3.0*	$249.98
Quest Net+*	$995.98

*Offer for college/university U.S. & Canadian degree-seeking students only 6 credit hours minimum. Proof of student status required with order. For personal/educational use only.

To order or to receive a FREE Student Software Guide:

1-800-874-9001

JOURNEY
Education Marketing

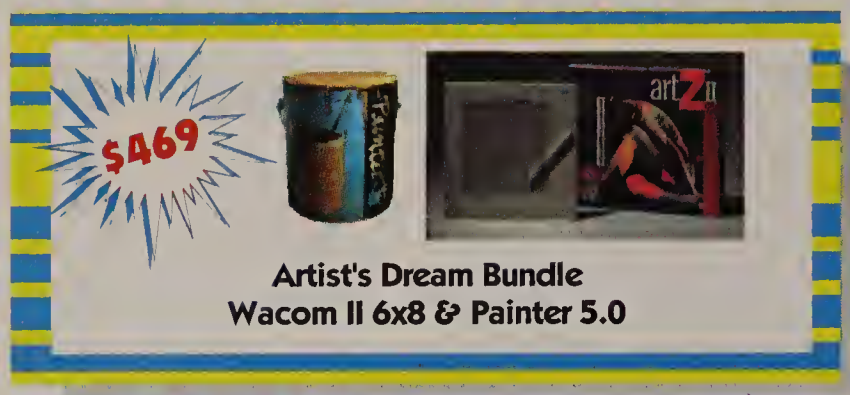
To order or to receive a FREE Student Software Guide:

1-800-874-9001

CIRCLE 425 ON READER SERVICE CARD

Student - Teacher - School Discounts!

WE WILL BEAT ANY ADVERTISED PRICE * LATEST VERSION & FULL PACKAGES



Artist's Dream Bundle
Wacom II 6x8 & Painter 5.0

Epson Stylus 800 Color Inkjet
High performance 1440x720 dpi

FileMaker Pro 3.0
#1 Relational Database

Hi-Speed Rendering

Director 6 Multimedia Studio
Includes Director 6, xRes 3, Extreme 3D 2, SoundEdit 16 2.2

Eye Candy 3.0
Photoshop Plug-in that contains several filters

Freehand Graphics Studio
Includes Freehand 7, Fontographer, Extreme 3d, and Xres

NetObjects Fusion 2
Smart Way to Build Web Sites

MiniCad 7.0
2D/3D Cad Software

Fractal 3D Suite
Includes Dream Studio, Poser 2 & Detailer

Iomega Zip 100 External Drive
Expand your Hard Drive Without Limits!

Retrospect 3
Backup Software

LightWave 3D 5.0
Modeling & Animation

Call for FREE Catalog!
(800) 831-2295
Includes Complete Price List & Free Product Info.

- **SAME DAY SHIPPING ON MOST ITEMS.
- **ADOBE, SYMANTEC & MICROSOFT PRODUCTS AVAILABLE TO QUALIFIED STUDENTS, TEACHERS & SCHOOLS.
- **SCHOOL PURCHASE ORDERS WELCOME.
- **NO SURCHARGE ON CREDIT CARDS.
- **IBM & MAC PRODUCTS AVAILABLE.

Visit our NEW Web Site!!
http://www.swsonline.com

3D AcuWorlds	$159
Alias Sketch! 2.0.2	$199
Amapi 3.0	$249
Antique Maps Of The World	$149
Astound 3.0	$99
Aurorix 2	$149
Authorware 4.0	$749
AutoCAD R12 w/Ame	$199
BBEdit 4.0.4	$79
Berserk 1.3.1	$149
Boris Effects Pro 2.3	$199
Canvas 5.0	$179
ClarisWorks 4.0 Internet Editian	$89
Classic PIO Classic Symbols	CALL
ClearVideo 1.2	$209
Coda Finale 3.7	$249
CadeWarrior 11 Pro	$129
ColorDrive 1.5.3	$89
Canflict Catcher 4.0	$59
CorelDRAW Suite 6	$169
Cubase Audio XT/VST 3.0	$399
DeBabelizer ToolBox 1.6.5	$219
Dramatica Pra 2.0	$199
EndNate Plus 2.1 w/EndLink	$165
FastTrack Schedule 4.01	$129
Final Draft 4.1	$125
Flash 2.0	$149
Fla 2.6.2	$69
Form Z 2.9	CALL
Fractal Expressian 1.0	$99
Fractal Painter 5.0	$209
HyperCard 2.3.5	$89
HyperStudia 3.1	$119
Illuminaire Paint	$749
Infini-D 4.0	$229
Inspiration 5.0	$79
Japanese Language Kit 1.2	$129
Jmp 3.2	$329
KPT Bryce 2.0	$119
Kai's Phata Soap 1.0	$49
Kai's Pawer Tools 3.0.2	$85
KaleidaGraph 3.0	$89
Kidpix Studio	$35
Kodak DC50 Digital Camera	$649
LightWave 3D 5.0	CALL
M.Y.O.B 7.0	$49
MTrapolis 2.0	$449
Mac Academy Tutarial Video	$35
Mathematica 3.0 Student	$149
Myrmidan 1.2	$35
Netscape Navigatar Gald 3.0	$49
Naw Utilities 6.7	$55
ObjectDancer 1.0	$199
OmniPage Pro 7.0	$329
Paint Alchemy 2.0	$79
PhataTaals 1.1	$69
PixelPutty Sola 1.5.2	$199
Pawer/Pac 1.01 Auto/Effect	CALL
Presenter 3D 3.6	$995
Ram Daubler 2.0	$55
SPSS 6.1 Student	$99
Screen Caffeine Pro	$75
Spanish Language Assistant	$49
Speed Doubler 2.03	$55
Spartster 56K External	$209
Squizz! 2.0	$69
StoryBoard Artist 1.5	$329
Studia VisianPro 3.5	CALL
StudioPro 2.0.2	$549
Stuffit Deluxe 4.0	$69
SuperCard 3.0	$129
System 7.6 Software	$85
TelePart 56x2 Ext Fax/Modem	$205
Terra Forma Regional	$119
Trackman Marble	$85
Tree Prafessianal 4.0	$299
TypeCaster	$79
TypeShap	$429
Umax Astra 600S Scanner	$239
Virex 5.7	$49
Wacom Art Z II 12x12 Serial Tablet	$399
Wacom Art Z II 6x8 Adb Tablet	$285
Walkthrough Pro 2.6	$229
WebPage Graphics	$69
WildRiverSSK 1.0	$85
WordPerfect 3.5.1	$69

The SOFTWARE Source

1-800-831-2295

1750 Brielle Ave, Unit A-2
Ocean, NJ 07712
PHONE (908) 695-2100
FAX (908) 695-9371
E-MAIL: SFTSWS@AOL.COM

CIRCLE 423 ON READER SERVICE CARD

Thousands of MACINTOSH Titles Available

www.UNITED CD ROM®.com

THRUSTMASTER T-2 NEW FOR THE MAC $129 55454

CALL US NOW FOR A FREE CATALOG!

1•800•864•8334

OVER 10,000 TITLES IN STOCK DAILY!

FREE SOFTWARE WITH EVERY PURCHASE!*

SAME DAY SHIPPING!**

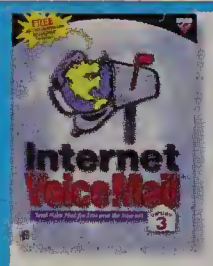
NEW!

techmedia®

TECHMEDIA MONITORS
by Techmedia Computer Systems

These monitors are renowned for breaking the price/performance barrier and delivering top-notch quality. Crisper pictures, brighter colors, and a full 3 year warranty make our displays the canon by which all others are measured. With a crisp output and adjustment features normally associated only with expensive monitors, our displays give you everything you would expect and more! These monitors provide higher refresh rates, brighter color contrast, and more adjustments than most, yet carry a price tag that will surprise you.

58662	14" Monitor	$201
58663	15" Monitor	$276
58785	17" Monitor	$525
58787	20" Monitor	$1137



INTERNET VOICE MAIL
Lets users send & receive voice mail over the Internet for free to anyone with an Internet e-mail address. As easy and versatile as e-mail.
59306 $25

INTERNET PHONE
Lets you talk for free over the Internet, using your Internet connection to route long distance calls. Offers all the features of a regular phone.
59305 $25

VOCALTEC

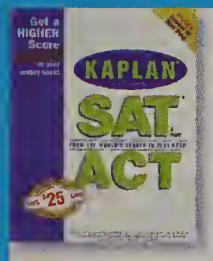
WILD AFRICA II
The second in the Wild Africa series of CDROM's focusing on Africa's national parks and the endangered animals that inhabit them. Filmed on location.
59494 $23

EXPLORING LOST MAYA
The second title in the Ancient Cities series, this is the most complete history of ancient Maya civilizations available on CDROM.
49937 $23

SUMERIA

TIE FIGHTER COLLECTORS EDITION
by LucasArts

With 100+ missions, defender of the Empire campaign plus brand new enemies of the empire campaign.
54422 $44



SAT & ACT BUNDLE
Kaplan, #1 in Test Prep for 60 years, Guarantees to raise you SAT and ACT score with the most personalized & focused studyplan available.
53845 $25

GRE/GMAT/LSAT BUNDLE
Higher GRE, GMAT or LSAT scores: That's your goal and ours. Kaplan is the Test Prep Industry's leader for 60 years.
53846 $25

SUPRA EXPRESS 33.6
by Diamond Supra

With data speeds to 33.6 kbps, top rated software, all necessary cables and easy to read manuals, An outstanding value.
53518 $87

QUAKE
by Wizard Works

The exciting, mesmerizing follow up to DOOM. Blast your way through the computer with up to 16 of your friends.
59078 $55

SPORTSTER 33.6 VOICE
by US Robotics

Compact, easy to use solution lets Macintosh users manage voice mail, faxes and data transmissions.
50763 $106

DIABLO
by Davidson & Assoc.

Diablo transports the player to a medieval village plagued with an evil darkness. Random levels, multi-player and more.
60076 $49

DEATHTRAP DUNGEON
by Eidos Interactive

Offering you an immense 3D world, Deathtrap Dungeon entombs you deep inside a devilish dungeon labyrinth.
44694 $39

MOUSESTICK II
by Advanced Gravis

Features 5 programmable fire buttons with index finger fire button with built-in Y Connector. Excellent Choice!
15770 $33

HERCULES STORYBOOK
by Disney Interactive

With his great strength & his trusty flying horse, Hercules must prove himself a hero to regain his rightful place on Mt. Olympus..
57592 $39

MARATHON TRILOGY BOX SET
by Bungie

The entire award-winning Marathon saga which includes Marathon, Marathon 2: Durandal, and Marathon Infinity. A staggering 1200 maps, featuring never-released Bungie maps & and a wide variety of third-party add-ons. To top it off, the award-winning game that laid the groundwork for Marathon: Bungie's breakthrough Pathways Into Darkness.
59199 $45

* While supplies last. Shipping charges apply to free offers.
**Orders received as late as 6:00 pm (CST) for 2nd day air. Call for other deadline times.
Special offers, item availability and prices may vary according to format and are subject to change without notice. All prices in U.S. dollars. Not responsible for inadvertent errors.

ALL MAJOR CREDIT CARDS ACCEPTED

CODE M09

Business Hours: Mon 8am–8pm; Tues-Fri 9am–8pm; Sat 11am–5pm; Sun 12pm–5pm.
Mail Orders to: 800 United CD ROM Drive, Urbana, IL 61802

CONTACT US!

Int'l orders 1-217-337-8532
http://www.unitedcdrom.com
Phone Orders 1-800-864-8334
Fax orders 1-217-337-8531

GRAVIS BLACKHAWK
by Advanced Gravis

The Blackhawk gives you the realistic look & feel of an expensive flight stick at a truly comfortable price.
55213 $55

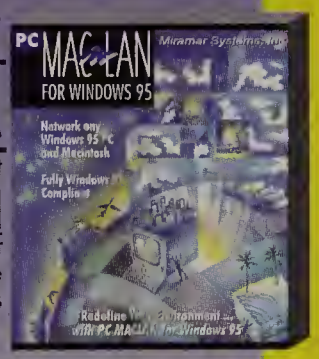
CIRCLE 407 ON READER SERVICE CARD

Finally! Windows 95 and Macs Share Files and Printers Both Ways

Workgroups and small offices can now operate as efficiently as an enterprise with **PC MACLAN for Windows 95**. Low cost, plug and play installation, Network Neighborhood and long file name support, are just a few of the features that make sharing files, volumes and printers between Macs and PCs a snap.

"For peer-to-peer networking . . . PC MACLAN 6.0 is the only choice."
— Macworld · Nov. '96

Create your own network or complement almost any pre-existing LAN. Sharing information between Windows 95 and Macintosh users is as easy as working off your local hard drive. Print jobs go to the printer of your choice regardless of its location on the network.



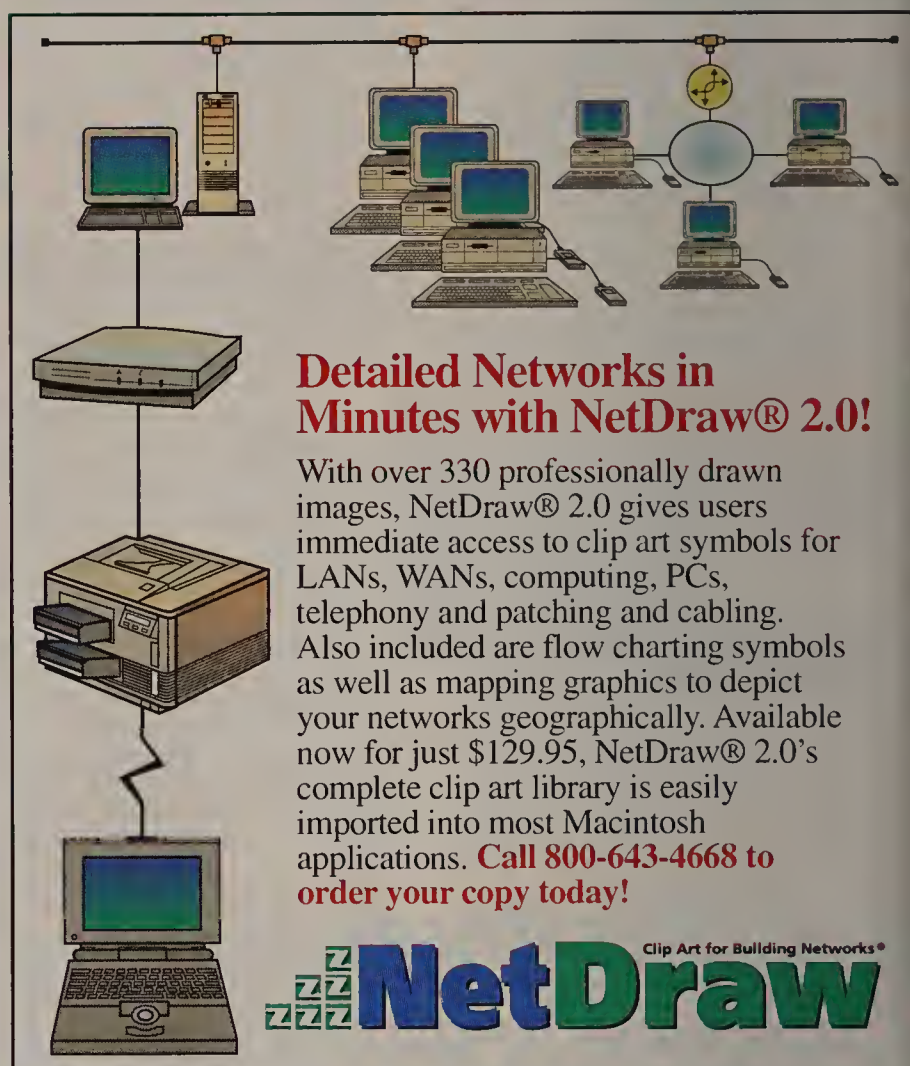
For ordering or information:
800-862-2526
e-mail: sales@miramarsys.com
Web: www.miramarsys.com

NOVEMBER 1996 Macworld STAR Rating ★★★★ 7.5

Miramar Systems, Inc.

Please visit us at these upcoming shows:
Macworld Expo Boston Aug. 6-8 — Booth # 460

CIRCLE 431 ON READER SERVICE CARD



Detailed Networks in Minutes with NetDraw® 2.0!

With over 330 professionally drawn images, NetDraw® 2.0 gives users immediate access to clip art symbols for LANs, WANs, computing, PCs, telephony and patching and cabling. Also included are flow charting symbols as well as mapping graphics to depict your networks geographically. Available now for just $129.95, NetDraw® 2.0's complete clip art library is easily imported into most Macintosh applications. **Call 800-643-4668 to order your copy today!**

NetDraw Clip Art for Building Networks®

CIRCLE 461 ON READER SERVICE CARD

We've got too much inventory! All new and lower prices on CD-R blanks! Get the highest quality GOLD CD media available on the market for as low as $4.99 each. And we're talking name brand!

As Low As $4.99 ea.

NEW! RE-WRITE CDs — CD-RW Technology Is Here!
-2X WRITE/6X READ
-REWRITE UP TO 1,000 TIMES!
-INTERNAL & EXTERNAL AVAILABLE
-GREAT DEALS ON CD-RW MEDIA
AVD CD RECORDERS
-INTERNAL $749 EXTERNAL
TOAST 3.5 FOR MACINTOSH INCLUDED
$649
also reads/writes CD-R discs

RECORD CDs 4x/6x write read Recordable CD — NEW! FAST!
-2MB CACHE BUFFER
-250 MS ACCESS SPEED
-YAMAHA INSIDE
AVD CD RECORDERS
$729 -INTERNAL
fastest ever!

RECORD CDs — JAZ 1GB & CD Recorder Duo!
-1GB JAZ & CD-R
-ALL IN 1 UNIT (2 SCSI)
-W/SOFTWARE+CABLES
EXTREME
$899
jaz/cd-r duo

AFFEX LABEL CDs — 720 dpi CD-R color printer!
FREE with purchase of printer: 10 pieces of printable media!
-PRINTS DIRECTLY TO CDs, PAPER OR CARDSTOCK!
$999
720 dpi color!

SPEEDY! 12X/16X! PLAY CDs — CD-ROM drives
$299 -EXTERNAL
-PLEXTOR: FASTEST AUDIO CAPTURE WHEN RECORDING AUDIO CDs!
plextor 12X or 16X
CD-ROM & CD-R Duo: Copy CDs/Capture Audio
$1099 4X/6X/12X

DUPLICATE CDs — Standalone CD-2-CD Dup. System
$2699
MediaFORM CD-2-CD (above)
Call For Pricing On Other Systems:
MediaFORM 2601 - 25 CDs
MediaFORM 2610 - 25 CDs
MediaFORM 4600 - 6 Drives!
Champion - 50 CDs

Product Prices and Availability Subject To Change

MACWORLD BOOTH WTC #5810

Ad Code: BA-109

ORDER TOLL FREE! VISA AMERICAN EXPRESS P.O.s
800.555.5551
open M-F 7 a.m. - 6 p.m. (PST) • intl ph. 714-974-5551

MEDIASTORE
www.mediastore.com

CD Recorders	int.	ext.
AVD 4X-W/6X-R Yamaha	$729	$799
AVD 4X-W/4X-R	$679	$779
AVD 2X-W/6X-R Sony	$449	$499
AVD 2X-W/6X-R ReWriteable	$649	$749

JAZ/CD-R Duo	ext.
JAZ 1GB & 4X/6X Yamaha	$1,299
JAZ 1GB & 4X/4X	$1,249
JAZ 1GB & 2X/6X Sony	$899
Fast Audio Capture & CD Copy 4X/6X/12X	$1,099

Media

Syquest Comp. 44MB	$33	12BMB Optical	$9.99
Syquest Comp. BBMB	$37	230MB Optical	$10.99
Syquest 135MB	$21.99	640MB Optical	$27.99
Syquest Comp. 200MB	$55	650MB Optical	$29.99
Syquest 270MB	$55	1.2GB Optical	$26.99
ZIP 100MB	$14.99	1.3GB Optical	$39.99
JAZ 1GB	$95	2.6GB Optical	$69.99
DLT 10/20GB	$39.99	IAPEX 4.6GB Optical	$169
DLT 15/30GB	$47.99	comp. = compatible with Syquest brand media	
DLT 20/40GB	$106.99		

Data Storage	int.	ext.
JAZ 1GB Drive + Cartridge	$299	$399
Nikon Beluga 2.6GB LIMDOW	$1,699	$1,799

CD-R Software

CD-DA Professional Audio CD Mastering	$399
CD COPY Copy any data or audio CD	$99
M-PACK MPEG Encoding Software	$399
TOAST #1 CD Writing Software	$99
MASTERLIST Pro Audio CDs by Digidesign	$499
AUDIOMEDIA III Mac PCI Audio I/O Card	$699

CIRCLE 471 ON READER SERVICE CARD

The source for supplies — Since 1981
http://www.diskettecconnection.com

CD-R's Verbatim TDK . . . . . Call

Zips • Free rack in Sony 6 pack . $12.50

Optical Disks 230MB w/case . $10.50

CD-R access. Jewelcases . . . Call
20 Labels . . . 3.50
Marking pen . 3.99

Jaz Disks 1GB MAC . . . $88.00

128MB w/case . . . $9.25
1.2GB/512 . . $ 43
2.3GB/512 . . $ 65

EZ-135 SyQuest cartridge by Maxell $17.95

DDS-2 Maxell 4mm 120m . . $15.55

LsrWr. Pro 600 toner cart. $80.25

PD-650 Drive External w/cart. . . . Call

PD-650 Disks MAC 5+. $29.35

SW 2400 JetFill Blk BCI-21 . $5.79

DisketteCONNECTION 1-800-654-4058

Visa/MC/Discover • ph 405-789-0888 • fax 405-495-4598 • 7-7cst, M-F

CIRCLE 485 ON READER SERVICE CARD

1-888-262-6289

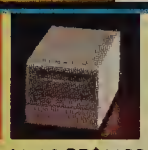
AAA Media, inc

BACK UP SOLUTION • SPECIALIST •

http://www.aaamedia.com • e-mail • sales@aaamedia.com

TEL: 818-718-9625 FAX: 818-718-9626

4MM DAT



SONY 9000	12-24 GB	$1288
HP C1533A	4-8 GB	$928
*CDT 8000	4-8 GB	$936
AIWA 8000	4-8 GB	$758
SONY 5000	4-8 GB	$788
*ARCH. 4322	2-4 GB	$628
*WANGDAT	2.0 GB	$578
CDT 4586	16-32GB	$1458
HP C1553	24-48GB	$1658

*external pkg. included

8 MM EXB

EXB 8200	2.3 GB	$498
EXB 8500	5 GB	$1078
EXB 8505	5 -10GB	$1378
EXB 8505XL	5-15 GB	$1718
EXB 8700	14 GB	$1028
EXB 8900	20-40 GB	$4138
SONY SDX-300/C	35-70 GB	$3698

HARD DRIVES

SEAGATE ST15150N 4.3 GB $928

MICROPOLIS 1991A/V 9.0 GB $1698

GOV / EDU / P.O.'S WELCOME!

OPTICAL DRIVE

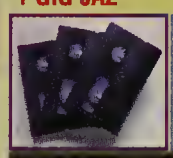
LARGEST DISTRIBUTER OF STORAGE PRODUCTS

FUJI	230 MB	$428
HP C1716C	650 MB	$698
SONY E501	650 MB	$738
MAXOPTIX T-2	1.0 GB	$548
MAXOPTIX T-3	1.3 GB	$998
HP C1716T	1.3 GB	$1098
HP C1113F	2.6 GB	$1998
SONY F544	2.6 GB	$1988
MAXOPTIX T-4	2.6 GB	$1488

MEDIA

TDK • FUJI • SONY

4 MM	60/90M	$5.25/7.25
4 MM	120M	$17
8 MM	112/160M	$5.75/12
CDR	74M	$5.95
DLT 2/3XT/4		$39/51/91
ZIP 100		$11.50
1 GIG JAZ		$89



CALL FOR TAPE & OPTICAL LIBRARIES

MAXELL • 3M • HP

DLT

DLT 2000	10-20 GB	$2328
DLT 20XT	15-30 GB	$2678
DLT 4000	20-40 GB	$4158
DLT 7000	35-70 GB	$7678
DLT 2500XT	75-150 GB	$6978
DLT 4700	140-280 GB	$7726

BEST PRICE & QUALITY GUARANTEED • QUANITY ORDERS WELCOME!

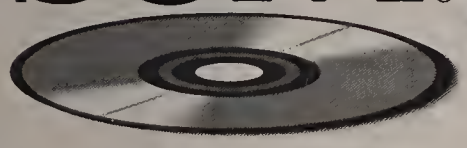
• ALL TAPE DRIVES INCL. DANTZ RETROSPECT SOFTWARE •
• ALL DRIVES IN STOCK / TESTED BY CERTIFIED ENGINEER •

ALL PRICES SUBJECT TO CHANGE

CIRCLE 412 ON READER SERVICE CARD

74 MINUTE CD-R & CD-RW

SONY® $4.69



MINIMUM 50 CUSTOM PRINTING AVAILABLE!

CD-RW IS HERE!

RICOH

CD-REWRITABLE DRIVES & MEDIA

$659 2X/2X/6X CD REWRITABLE DRIVE

EXTERNAL DRIVE W/TOAST V. 3.5 SOFTWARE AND ONE (1) CD-RW DISK

CD-RW BLANK MEDIA $23.95

jaz

JAZ CARTRIDGE $85.95

Verbatim. OPTICAL DISKS

128MB $9.95
230MB $11.95

SEE US AT THE MACWORLD EXPO IN BOSTON ON AUGUST 6-8!

MEDIA SUPPLY 800-944-4237

610-458-9100 • Fax: 610-458-9464 www.mediasupply.com

CIRCLE 413 ON READER SERVICE CARD

Custom ULTRA SCSI Products

SCSIVue™ Active Terminator

From: $59

Benefits:
• Improves SCSI Bus Performance
• Less Errors; More Reliable Data Transfer
• Diagnoses Problems • Analyzes Signal Quality

Features:
• Active Regulation • Fast 50 & Fast Wide 68
• Status Indicators • Gold Contacts

Optional Remote Display

SCSI 2+3 COMPATIBLE

SCSIVue™ Gold Cables

From: $39

Features:
• Triple Shielding (Unique Design)
• Double Gold 20u" Plated Connectors
• Diagnostic Indicators • Large Ferrite Filters
• Extra Heavy 26 Gauge Wire • 100 Styles in Stock

Custom Teflon® Internal Cables

Teflon® is a registered trademark of DuPont

Benefits:
• Less Errors, Ultimate Performance
• Silver Wire Improves Signal Quality

Features:
• Perfect 90 Ohm Impedance • Custom in 1 Day
• Triple Pronged Connector - Gold contacts Silver Wire

From: $39

Active 2-1 SCSI Switch / Repeater

Benefits:
• Up to 14 Devices to 1 Computer
• Share Devices Between 2 Computers

Features:
• 2-1 Active Digital Switch/Repeater
• Regenerates SCSI Signal for Long Runs

Rear View

From: $599

Active Digital SCSI Repeater

From: $149

PS Included

Benefits:
• Models for all SCSI types
• Fixes SCSI Cable Problems
• Doubles Cable Length (up to 18')
• Active Termination and Signal Purification
• Ultra Fast Performance for Added Capabilities
• Diagnostic Capabilities • 30u" Gold Contacts

Gold Diagnostic Adapters

Styles:
• 68 Pin Drive to 50 Pin IDC (runs wide drive as narrow)
• 68 Pin External Adapter to 50 Pin (converts Host Adapter)
• Gender Changers both 50 and 68 pin (all combinations)
• Adapters with partial termination for 68 to 50 converters

From: $39

Teflon® 90 Ohm External Cables

Benefits:
• Ultra SCSI 40 MB/s operation
• Fixes Ultra SCSI Cable Problems

Features:
• Perfect 90 Ohm Impedance Match
• Triple Pronged Connector With Gold contacts

From: $159

Gold External Ultra SCSI Cases

• Ultra SCSI Custom Teflon Cable Available
Custom Enclosures in 1 Day for Raid & Arrays

2 Bay Tower
4 Bay Tower
8 Bay Tower

3.5" & 5.25" Case Kits

HOT SWAP Pull Out Bays

BAY COOLER Keeps Drives COLD as ICE!

TEMP ALARM Controls Case Temperature

SCSI Cable Tester - LED Readout

This Digital SCSI Cable Tester can test all the popular cable styles for opens, shorts, and unreliable operation. Battery powered for easy use.

Three models to choose from:
• 50 pin IDC
• 50 pin Centronics
• 68 pin MicroD

From: $49

Granite D•I•G•I•T•A•L

The SCSI Solution Company
Ph: 510-471-6442 Fax 510-471-6267
3101 Whipple Rd Union City, CA 94587
Online Catalog at: www.scsipro.com

CIRCLE 408 ON READER SERVICE CARD
See Us at Macworld Expo: Bayside #409

MWAd# 0997

Business Leasing By

All Prices Are Based on C.O.D. Order & Subject to Prior Sales & Change!

* Factory refurbished with Warranty

COMPU.D

International, Inc.

6741 Van Nuys Blvd., Vasn Nuys, CA 91405

1-800-929-9333

www.compu-d.com

Sales (818) 787-3282
Fax (818) 787-5555
e-mail: csales@compu-d.com

FedEx DHL

Fast Worldwide Shipping

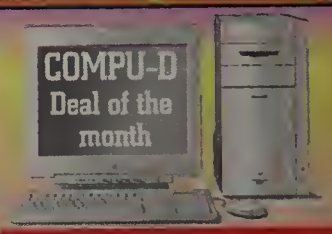
PowerMacs

4400/200	32-2GB, 12xCD, DOS	$2295
4400/200	32-2GB, 12xCD, 33.6, Office	$1545
4400/200	16-1.2GB, 8xCD	$1195
6500/250	48-4GB, 12xCD, Zip, Office	$2295
6500/250	32-4GB, 12xCD, Zip	$2095
6500/225	32-2GB, 12xCD, 33.6	$1799
7200/132	16-1.2GB, CD	$1295*
7200/120	16-1.2GB, CD DOS	$1555*
7300/200	32-2GB, 12xCD	$2195
7300/180	16-2GB, 12xCD, DOS	$2695
7300/180	16-2GB, 12xCD	$1745
8600/200	32-2GB, 12xCD, Zip	$2745
8600/200	64-4GB, 12xCD, Zip	$3395

9600/233 32-2GB, 12xCD $3085

9600/200MP 32-4GB, 12xCD $3795

9600/233	32-0HD, 12xCD	$2195
9600/200MP	64-9GB, CD	$4795
9600/200	32-4GB, 12xCD	$2995
9500/200	32-2GB, CD	$2345
9600/200	32-0HD, 12xCD	$1995
9500/180MP	32-2GB, CD	$2695



DIMM Memory
We will beat any price including installation

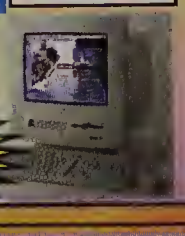
Performa

6400/200	16/2.4GB, 8xCD, 28.8	$995*
6400/180	16/1.6GB, 8xCD, 28.8	$1095
6400/180	16/1.6GB, 8xCD, 28.8	$845*
6300/100	8/1GB, CD	$595*
6360/160	16/1.2GB, CD, KB, 28.8	$929
6200/75	8/500, CD, KB	$595
6200/75	8/800, CD KB	$595
5260	8/800 CD, SVGA Mntr., KB	$995

6400/200 16/2.4GB, 8xCD, KB, 33.6+15"AV Display $1595

5400/180 16/1.6GB, CD, KB, 15" Display $1195

Star Color Printer — Free w/Sys. Purchase over $2000



Displays & Printers

Apple 14"/15"/15"AV	$289/349/375
Apple 1705/1710/1710AV	$585/779/845
Apple 20 20" Color Trinitron	$1399
radius PrecisionView 21" 0.25dpi	$1595
radius PressView 17SR	$1979
radius PressView 21SR	$2575
Color LaserWriter 12/600 PS	$4595
LaserWriter 12/640 4/600*	$1349/499*
StyleWriter 2500*/2500/2200	$199*/259/22[illegible]
StyleWriter 1500/1200*	$189/11[illegible]

PowerBooks

3400c/240	16-3GB, 12xCD, 33.6	$5195
3400c/180	16-1.3GB, 12xCD, 33.6	$3745
1400c/133	32-2.1GB, 6xCD	$2945
1400c/117	16-1.1GB, 6xCD	$2295
1400cs/117	16-750, 6xCD	$1665
1400cs/117	12-750, 8xCD	$1595
DUO 280 & 250	8-240	$695/495
DUO 2300C	40-2.1GB	$1595
DUO 2300C	8-750	$1095
Memory, Parts & Accessories		CALL

PB. 1400c/133 MHz 16/1.1GB, 6xCD $2445

PB. 1400cs/117 MHz 44/2.1GB $2095

Duo 2300C/100 MHz *20/1.1GB $1395

STORAGE

iomega Zip Drive SCSI /10 pack Crtrdg.	$139/125
iomega Jaz Drive SCSI/5 pack Crtrdg.	$379/409
SyQuest SyJet 1.5GB SCSI Removable	$489
Quantum Tempest 2GB SCSI-II	$249
Quantum Atlas 2.1GB SCSI-II	$439
Quantum Atlas 4.5GB SCSI-II/III	$799/869
Quantum Atlas 9GB SCSI-II	$1349
Seagate Barracuda 4.3GB SCSI-II	$749
IBM 4.3GB SCSI-II (5 Year Warranty)	$439
TOSHIBA 1.08/1.35GB IDE 2.5" f/PB.	$189/229
TOSHIBA 2.1/3.08GB IDE 2.5" f/PB.	$349/559

Printers & Scanners

HEWLETT® PACKARD

Color LaserJet 5M	$4895
LaserJet 5SIMX	$3349
LaserJet 4MV/5M/6MP	$1995/1395/795
LaserJet 4MV*/5MP	$1895/595
DeskJet 1000CXi/1600CM	$499/1395
DeskJet 870CXi /855CXi	$389/310
ScanJet 5C/5P/4C	$CALL/410/689

AGFA — Arcus II $1475; DuoScan $4295

Microtek — ScanMaker III 36bIT $1349; ScanMaker E6 $339; ScanMaker E3 $159

UMAX® Scanners — The Magic of Color™

UC1200SE 30 bit color	$489
Astra 600S	$239
Vista S12	$489
PowerLook II	$1299
PowerLook 2000	$2995

Mac Clones

UMAX® S900 200 MHz $2095

MOTOROLA 3000 200* Desktop $945; 3000 160* Minitower $925

PowerComputing — More Power to You: Tower 200 Minitower $2155; Center 150 Minitower $1775

Apple Design Keyboard $49

SOFTWARE at Unbeatable Prices!

Adobe	Photoshop 4.0/Illustrator 7.0	$345/239
	PageMaker 6.5/Acrobat 3.0	$295/139
	Premiere 4.2/Persuation 4.0	$389/189
	After Effects 3.0/StreamLine 4.0	$389/109
Quark	QuarkXpress 3.3/3.32/4.0	$499/629/CALL
Macromedia	Freehand 7.0	$239
MetaCreations	Bryce2.0	$149
	Kai's PowerTools 3.0	$119
	Painter 5.0/Detailer	$259/239
Microsoft	MS Office 4.2.1	$279
	MS Excel /MS Word 6.01	$159/149

Graphic Tablets

WACOM

ArtPad II 4x5	$119
ArtZ II 6x8/12x12*	$259/299
ArtZ II 12x18*/12x18	$399/629

Video & Graphic Cards

ixmicro: Turbo TV $125; Twin Turbo 128M4 $229; Twin Turbo 128M8 $469

TRUEVISION Targa Cards CALL

radius VideoVision NuBus $595

COMPAQ IBM TOSHIBA TEXAS INSTRUMENTS

PC's

Desktop & Laptops in Stock ! Call for Best Prices!

CIRCLE 434 ON READER SERVICE CARD

COMPU AMERICA

"The Computer Specialist"

1800-533-9005

HTTP://WWW.COMPU-AMERICA.COM

(310) 446-1771
FAX Bids
(310) 475-7744

10435 Santa Monica Blvd
LA, CA 90025

EMAIL: CompuAmer@artnet.net

Come and see our HUGE showroom! We ship WORLDWIDE!
We accept Government, Fortune 1000, and University P.O.'s.

PowerComputing

WE CARRY THE WHOLE LINE OF POWERCOMPUTING UNITS! PTP 250MP, PTP 250, PCP 210!

PowerComputing

PowerTower Pro 225e	PowerCenter Pro 210	PowerCenter 604/180	PowerCenter 604/166	PowerCenter 604/150
225MHz 604e Full Tower	210MHz 604e MiniTower	180MHz 604e CPU MT	166MHz 604 MT	150MHz 604 LP
16/2G/8XCD/8MB IMS	32/2G/16XCD/KEYBRD	16/2G/8XCD/2MB VRAM	16/2G/8XCD/2MB VRAM	16/1G/8XCD/2MB VRAM
1MB CACHE, KEYBOARD	60MHZ BUS, 1MB CACHE	512k CACHE, Keyboard	512K CACHE, KEYBOARD	512K CACHE, KEYBOARD
$2399 Refurbished One Year On-Site	$2499 BRAND NEW One Year Warranty	$1599 Refurbished One Year On-Site	$1399 Refurbished One Year On-Site	$1099 Refurbished One Year On-Site

8600/200

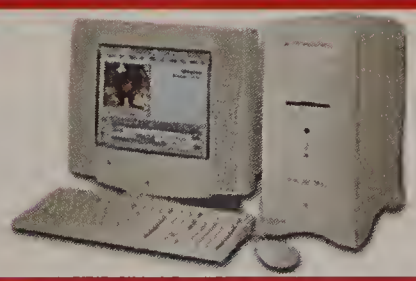
- 200 MHz PowerPC 604e
- Built In ZIP Drive
- VIDEO IN AND OUT
- Built-In 12x CD-ROM

32/2G/12XCD/ZIP ON SALE! $2595

3400C/240

- 240 MHz PowerPC 603e
- Active Matrix Color Screen
- 2 PCMCIA Slots
- 33.6 FAX Modem w/Ethernet

16/3G/12XCD ON SALE! $4795



6500/250

- 250 MHz PowerPC 603e
- Built in ZIP Drive
- MicroSoft Office Includ.
- MiniTower with 2 PCI Slots

48/4G/12XCD/ZIP ON SALE! $2279

6400/180

- 180 MHz PowerPC 603e
- Refurbished 90 day warranty
- 16meg ram & 1.6 GIG HD
- keyboard & mouse

16/1G/CD ON SALE! $1195

NEW POWERMACS!

9600/200MP	34/4GIG/CD	3599
9600/233	32/4GIG/CD	2895
9600/200	32/4GIG/CD	2695
8600/200	32/2GIG/CD/ZIP	2595
7300/200	32/2GIG/CD	2099
7300/180	16/2GIG/CD	1695
6500/300	32/4G/CD	CALL
6500/275	64/4G/CD/ZIP	CALL
6500/250	48/4G/CD/ZIP/O	2199
6500/250	32/4G/CD/ZIP	1999
6500/225	32/3G/CD	1699
4400/200	16/2/CD/KEY	1295
4400/200	32/2G/CD/OFF/K	1499

POWERMAC

7200/75	8/500/4XC	799*
7200/90	8/500/4XCD	849*
7200/120	16/1.2G/8XCD	999*
7200/120	16/1.2G/DOS	1599*
7600/120	16/1G/4XCD	1299*
7600/132	16/1G/CD	1399*
8500/120	16/2G/4XCD	1599*
8500/132	16/1.2G/4XCD	1699*
8500/150	16/2G/8XCD	1799*
8500/180	32/2G/8XCD	2199*
9500/132	16/2G/8XCD/V	CALL
9500/150	16/2G/4XCD/VID	CALL
9500/200	32/2G/8XCD	2199*
9500/180	MP 32/2G/8XCD	2799
8100/100	8/700	999*
8100/100	16/1GIG/CD	1399*
8100/110	16/2G/4XCD	1499*

WorkGroup Servers

7250/120	16/2G/CD	1095
7250/120	16/2G/CD/SHA	2199
7350/200	32/4G/CD/SHA	3495
7350/200	32/4G/CD/INTE	3395
8550/132	24/2G	2395
8550/132	24/2G/SHARE	3295
8550/200	32/2G/CD/INT	3995
8550/200	32/2G/CD/SHR	3295
8550/200	32/2G/CD/DAT	3995
500/132	32/2GIG/DAT/CD	7995
500/132	32/1G/CD	6499
700/150	32/1G/CD	7399
700/150	48/4G/DAT/CD	9295
700/200	48/2G/CD	9995
9150/120	16/1GIG	1495
9650/233	48/4G/CD/SHA	6395
9650/233	48/4G/CD/INT	5495

POWERBOOKS

3400C/240	16/3G/12XCD	4795
3400C/200	16/2G/6XCD	3895
3400C/180	16/1.2G/6XCD	3495
3400C/180	16/1.3G	2995
1400C/133	16/1G/CD	2499
1400C/117	16/1G/CD	2199
1400CS/117	16/750/CD	1699
1400CS/117	12/750	1399
5300CE/117	32/1G	1999*
5300C/100	8/500	1395*
5300CS/100	16/750	1395*
5300CS/100	8/500	1195*
5300/100	8/500	999*
190CS/66	8/500	999*
190/66	8/500	899*
DUO 2300C	20/1.2GB/14.4	1199*
DUO 2300C	8/750/14.4	899*
540C	12/160/MOD	1099*

Apple Printers

SW 1200/2400	129*/169*
SW 2200	279
SW 1500	179/149*
SW 2500	249/199*
Apple LW Select 360	799*
Apple LW 4/600PS	749/649*
Apple LW 12/640/PS	1349/1199*
Apple LW 16/600PS	1899/1399*
Apple LW 12/660PSC	5299

VIEWSONIC

VIEWSONIC 15GA-2	399
VIEWSONIC 15GS	379
VIEWSONIC 17EA	629
VIEWSONIC 17GA	649
VIEWSONIC 17GS	629
VIEWSONIC 17PS	749
VIEWSONIC G800	1049
VIEWSONIC P810	1349
VIEWSONIC GT775	699
VIEWSONIC GT800	1129
VIEWSONIC P810	1349
VIEWSONIC P815	1549
VIEWSONIC PT770	729
VIEWSONIC PT775	849
VIEWSONIC VP140	2199

AGFA

SNAP SCAN 3D	299
STUDIO SCAN II SI	639
STUDIOSTAR	829
ARCUS II	1595

PERFORMAS

6400/200V	16/2.4G/CD	1399*
6400/200	16/2.4GIG/CD	999*
6400/180	16/1GIG/CD	899*
6320/120	16/1GIG/CD	849*
6300/100	16/1.2G/4XCD	749*
6360/160	16/1.2G/8XCD	949*
6290/100	8/1.2GB/4XCD	729*
6220/75	16/1G/CD/TV	699*
6200/75	8/1GIG/4XCD	649*
6116/66	8/700/4XCD	649*
5320/120	16/1.2/CD/15"	1199
5260/100	16/800/CD	999*
5200/75	8/800/CD	1099*/949*
5400/180	16/1GIG/CD	1199
631/66	8/500/CD	599*

APPLE Monitors

Apple Ms 14"	249*
Apple MS 15"	299*
Apple MS 15AV	389
Apple 1705 17"	599/499*
Apple 1710 17"	729/649*
Apple 1710AV	829/749*
Apple Multiscan 20"	1299/1099*

SONY Monitors

Sony 100SF/100SX	399/349
Sony 200SF/200SX	739/649
Sony 300SF	1529

NEC Monitors

NEC 15XV+	449
NEC 17XV+	679/599*
NEC C500 15"	429
NEC C400 14"	329
NEC M500 15"	389
NEC M700 17"	699
NEC M750 17"	899
NEC E1100	1579
NEC P1150	1949

MODEMS

Global Village Plat 33.6 Voice	129
Global Village Gold II PCM 14.4	49
Global Village Gold II EXT 14.4	49
Global Village 28.8 PCMCIA	169
Global Village 28.8/ETHER	299
Global Village 19.2 500 Series	99

HewlettPackard

5SIMX	3499
5M	1549
5MP	649
6MP	859
4MV	2099
DeskWriter 680C	279
Deskjet 870CXI	389

EPSON

STYLUS COLOR 600	299
STYLUS COLOR 800	429
STYLUS COLOR PRO XL	1399
EXPRESSION/636/EXEC	749
EXPRESSION/636/ART	949
EXPRESSION/636/PRO	1299

RADIUS

PRESSVIEW 21SR 21"	2899
SUPERMATH 21TXL	1199*
PRECISION VIEW 21"	1599
15" COLOR PIVOT	399*
Thunder 30/1600	659
Tunder color 30/1600	1799
Thunder Power 30/1600	829
Thunder Power 30/1920	1099
Thunder 3D 1600 x1200	2699
VIDEO VISION STUDIO 2.0	3399

IMS

TWIN TURBO 8 MEG PCI	449
TWIN TURBO 4 MEG PCI	299
TWIN TURBO 2 MEG PCI	179

ATI

XCLAIM ULTRA VR 4 MEG	299
XCLAIM ULTRA VR 2 MEG	199
XCLAIM TV TUNER	89
XCLAIM 3D 8 MEG ACCEL	339

IOMEGA

ZIP DRIVE 100 MEG	139
JAZZ DRIVE 1 GIG	369
ZIP CART 10 PACK	129
JAZZ CART	89

RASTEROPS

SUPERSCAN MC-600	599
SUPERSCAN MC-611	699
SUPERSCAN MC-801	1549
SUPERSCAN 801-HR	1779

GCC TECHNOLOGIES

GCC ELITE-600ET (10PPM)	999
GCC ELITE XL-608	2099
GCC ELITE XL-616	2349
GCC ELITE XL-808	2699
GCC ELITE XL-1208	3899

WACOM

ARTZ II 6 X 8 W/PAINTER	579
ARTZ II 6 X 8	295
ARTZ II 12 X 12	429
ARTZ II 12 X 18	679

MOTOROLA STARMAX

3000/200-6	16/1.2G/8X	1399
3000/200-6S	32/2.5G/8X	1699
3000/240-6S	32/2.5G/8X	2149
3000/200-6E	32/2.5G/16X	1949
3000/240-6E	32/2.5G/16X	2299
4000/160-6S	32/2.5G/8X	1799
4000/200-6	32/2.5G/8X	2299
4000/200-6E	32/4.3G/16X	2549
5000/300	32/4.3G/16X	2499
5000/300-G	32/4.3G/16X	2999

UMAX COMPUTERS

C500/160	16/1G/8XCD	999
C500/180	16/1G/8XCD	1069
C600/180	16/1G/8XCD	1149
C600/200	16/2G/8XCD	1349
C600/240	24/2G/MOD	1599
J700/150	16/2G/8XCD	1699
J700/180	24/2G/8XCD	1899
S900/180	32/2G/8XCD	2495
S900/200	32/2G/8XCD	2699
S900/225	32/2G/8XCD	2999
S900/233	32/2G/8XCD	3399
S900/250	32/2G/8XCD	4299
S900/180DP	32/2G/8XCD	2895
S900/200DP	32/2G/8XCD	3495
S900/250DP	64/4G/8XCD	5995

UMAX SCANNERS

VISTA ASTRA 600-LE	279
VISTA ASTRA 600-PRO	449
VISTA ASTRA 800-LE	CALL
VISTA ASTRA 800-PRO	CALL
VISTA ASTRA 1200S	679

All prices are subject to change without notice. All prices are cash dicounted. An Asterisk "*" reflect refurbished.

CIRCLE 467 ON READER SERVICE CARD

MAC CARE, Specializing in Rebuilt Imagesetters complete PrePress Systems and Digital Video

PrePress System for Process Color

COMPLETECOLOR PREPRESS SYSTEM FOR PROCESS COLOR
INCLUDES: POWERMAC 4400 200 MHZ W/ 36M RAM, 17" COLOR MONITOR, AGFA ARCUS II SCANNER W/PHOTOSHOP ,COLOR PROOF PRINTER, AGFA 9550 COLOR IMAGE-SETTER, LEVEL II RIP AND PROCESSOR

WE BUY and SELL New-Rebuilt Imagesetters \ call for Pricing & Bids

AGFA • Linotype • ECRM • Ultre • Scitex

SilkScreening System

Imagesetter - Agfa or LinoType 18" Wide

- Includes RIP
- Adobe Postscript
- 2400 DPI
- Factory Refurbished
- Call for New & Refurbs!!

Spot Color System

COMPLETE SYSTEM FOR SPOT COLOR

Incudes Power Mac 7500 24/1G, 17" Color Monitor, Software, Ex Keybd.,AGFA Color Scanner,Color Proof Printer, Imagesetter w/Rip & Processor.

MicroShere Station

Experience the creative freedom with the most prominent video pioneers in the industry. Scitex introduces real time effects, dual stream video,Blows away the Pinnacle Aladin, max 360k per from, edl impart and much more!

SCITEX DIGITAL VIDEO

Bundle Package 21,500

MicroShere Station

PM 9500/200/128MB/3GB/CD/ATI Targo 2000 , Microsphere v1.35 4.2, Apple 17" Color Monitor, Ext. Keyboard, 18GB Disk **Call !**

SCITEX DIGITAL VIDEO

Media 100qx

MEDIA 100 AUTHORIZED RESELLER

7600/132 – 32M/1G/CD Adobe Premier 4.2, After Effects 3.0, 17" Monitor, Keyboard, 4100 w/SCSI Wide

Low $6,800

Software

Adobe After Effects Pro	$1595
Electric Image Broadcast	$1895
Adobe Photoshop	$495
Ulimotte	$1475

Call for any software package you can think of!

Scitex Explosive power. Right on the desktop.

BROADCAST QUALITY!!

BLOWING EFFECTS!

AVID ® MCXPRESS MAC

AVID ® MCXPRESS Workstation for Macintosh SYSTEM INCLUDES : Real Time effects, country kit 110v, betacam video, avid standards effects, Dual Channel Controller, 2 Channel Audio, Film Option, Deck Control, & 3D **Call !**

AVID ® MCXPRESS NT

AVID ® MCXPRESS Workstation for Windows NT SYSTEM INCLUDES INTEL PENT-PRO, 128M RAM,8G ARRAY, WINDOWS NT, 17 COLOR MONITOR, TRUEVISION Targa AND PATCH PANEL & MUCH MORE! CALL FOR DEMO & PRICING **Call !**

Media 100QXC

MEDIA 100 AUTHORIZED RESELLER

9500/200MHz 128MB/2G/CD After Effects 3.0, 17" Monitor, Keyboard, 4100 w/SCSI Wide Array, Vicent Component, Batch

Low $10,500

800-429-7779

Tel: 714-574-3939
Fax: 714-574-3947
Email: Clucero126@aol.com

3101 W P.C.H
Newport Beach, 150 CA 92663

CIRCLE 405 ON READER SERVICE CARD

USED COMPUTERS

- We move your used MAC equipment faster and for more money than anyone!
- Looking for used MACs? We have all models available for LESS!
- All hardware is tested and includes a limited warranty.
- Qualifying School, Gov't and Fortune 1000 POs Welcome
- We also specialize in used trade-ins

The Computer Exchange

800-304-4639

www.compexch.com
Ph: 404-898-0700
Fax: 404-898-0304
205 Armour Drive Atlanta, GA 30324

CIRCLE 460 ON READER SERVICE CARD

PACIFIC COMPUTER EXCHANGE

800.790.3881 | ORDERS & PURCHASING INFO

Used Macs Priced to Move

We buy and sell used Macs!

Cash paid for your Mac via Fed Ex!

Apple 15"MS/16"RG8	$299/399	Powerbook 140/145/150	$499
NEC 14"/Mag 17"	$229/399	Powerbook 160/170	$599
21" Mag Innovision	$999	Powerbook 180/180c	$799/1099
ImageWriter II	$169	Powerbook 520c 8/160/19.2	$1099
DeskWriter	$179	Powerbook 540c 20/500	$1499
Portable DeskWriter 310/320	$149	P8 5300cs 40/500/33.6	$1599
Color SW 2400/2500	$199/219	IIci/IIvx	$349
LaserWriter II nt/ntx	$299/399	Quadra 610/630	$499/549
LW Select 360 w/toner	$789	Centris 650/660av	$599
Classic/Classic II	$249/349	Quadra 840av 16/230 CD	$799
SE 30/Color Classic	$399/499	PPC 6100/66 8/250 CD	$749
LC/LCII/LCIII	$199/249/299	PPC 7100/66 8/250 CD	$849
IIsi/IIcx	$299	PPC 7200/90 8/500 4xCD	$949

Many More Macs & PowerMacs in stock! Please Call!

SPECIAL! New Reno 2X External Portable CD Rom $89

CIRCLE 451 ON READER SERVICE CARD

"Friends don't let friends use 'DOS'!"

... Buy or Sell Any Macintosh Through Us!

United Computer Exchange
800.755.3033 770.612.1205
Visit Our Online Exchange at www.uce.com

UNITED COMPUTER EXCHANGE

CIRCLE 436 ON READER SERVICE CARD

COMPUTER REVELATIONS

POWERMAC	
7300/180	$2299
7300/200	$2699
8600/200	CALL
9600/200	CALL
7200/7600/8500/9500/	CALL
PRINTERS	
LWRITER 12/640	CALL
LWRITER 4/600	$889
HP 6MP	CALL
HP 1600 C/PS	CALL
HP 4MV	$2699
STYLEWRITER 1500/2500	CALL
POWERBOOK	
1400CS/12/750	$1999
1400CS/16/750CD	$2299
1400C/117	CALL
1400C/133	CALL
UMAX / SUPERMAC	
S90L	CALL
S900D	CALL
SCANNERS	
VISTA/S6E SOHO	$279
POWERLOOK II	$1829
EXPRESSION 636	$1389
AFGA SNAPSCAN	$329
AFGA ARCUS II	$1589
MONITORS	
APPLE 1705	$895
CPD200SF2	$799
PRECISION. 21"SR	$3299
CPD 15SF	CALL
NEC 17XV	$779
PERFORMAS	
6360 / 6400	CALL

ALL APPLE PARTS & ACCESSORIES IN STOCK

Leasing / Rentals
Service avail. in NYC area

1 800 275-9924
in NY 516 737-0800
FAX 516 737-0923
331E DANTE COURT
HOLBROOK NY 11741

NEW & USED BOUGHT & SOLD

CIRCLE 474 ON READER SERVICE CARD

TEXAS INSTRUMENTS MicroLaser™ Pro E

- clear, crisp 600-dpi
- fast 12ppm!
- RISC processor
- 500-sheet capacity
- 3MB RAM with Adobe Memory Booster
- built-in support for Mac, Windows, & DOS!

BRAND NEW $799

Macintosh LC580

FREE software!

COMPLETE! INCLUDES MOUSE & KEYBOARD!
8MB RAM
800MB hard drive

NEW!

$849
$1049 with internal 4X CD

Performa 6200/75

FREE software!

- 75-MHz PowerPC™ 603
- internal 14.4 faxmodem
- 15" Multiscan
- keyboard & mouse

8/1GB/4XCD complete!
factory refurbished
PowerPC™
$899

Performa 6400/180

PowerPC™

- 16/1.6GB/8XCD
- 180-MHz PowerPC™ 603e
- internal 28.8 faxmodem
- keyboard not included

factory refurbished
$999!

Performa 6400/200 model with 16/2GB/8XCD also available for only $1299

PowerComputing

GREAT Factory Refurbished Deals with 90-day warranty and lots of software!

PowerCenter 166

- Factory Refurbished
- 166-MHz PowerPC™ 604
- 16MB of RAM and a *fast* 2GB AV hard drive
- 8X internal CD-ROM
- 512K Level 2 cache
- 105-key keyboard & ergonomic mouse
- MacOS 7.5.3, Speed Doubler™ and more!
- 90-day Factory Warranty

$1399
monitor sold separately

PowerCenter 150

- Factory Refurbished
- 150-MHz PowerPC™ 604
- 16MB of RAM and a 1GB hard drive
- 8X internal CD-ROM
- 512K Level 2 cache
- 105-key keyboard & ergonomic mouse
- MacOS 7.5.3, Speed Doubler™ and more!
- 90-day Factory Warranty

$1249
monitor sold separately
ALSO AVAILABLE IN DESKTOP AND LOW PROFILE MODEL

PowerBook 5300c

PowerPC™ ACTIVE MATRIX

- 100-MHz PowerPC 603e
- 8MB of RAM
- 500MB hard drive
- active-matrix color display
- supports external video

NEW!

Brand New $1599

POWERMAC 7200/75 LOGIC BOARD WITH POWER SUPPLY
$299
BRAND NEW!

MACINTOSH LOGIC BOARD UPGRADES

New Personal NT to NTR upgrade (exchange)	$79
PowerMac 8100 to 8500/120 (exchange)	$999
Quadra 950 to WGS 9150 (exchange)	$999
PowerMac 7200 to 7600/120 (exchange)	$699
Performa 630 to 6200/75 (exchange)	$399
Performa 630 to 6300/100 (exchange)	$499
Performa 6200 to 6300/100 (exchange)	$249
Quadra 800 to PowerMac 8100/80 (exchange)	$599
Quadra 660 to PowerMac 6100/60 (exchange)	$449
Performa 600/IIvx to Centris 650 (exchange)	$279

800, 840, 8100 Power Supplies

Original factory part from Apple. Brand new.

NEW $199

DuoDock BLOWOUT!

Get an Original Apple Duodock for your Duo 210 or 230. Upgradable on-board video for large displays.
DuoDock Plus pictured

RECONDITIONED . . . $299

ADB Mouse II

The original Apple ADB Mouse II. Order one today!

BRAND NEW $49

E-Machines DoubleColor SX

NEW!

- 8-bit accelerated video
- hardware pan & zoom
- for nubus-based Macs
- virtual screens feature

BRAND NEW $129

ProAudio Spectrum 16

NEW!

- 16-bit audio processing
- for Mac LC-series
- mounts in PDS slot
- patch bay included

BRAND NEW $59

Apple CD600i 4X Internal

Here's a REAL deal! A 600KB per second CD600i for only 79 bucks! 90-day warranty

BRAND NEW AppleCD 600i $79
BRAND NEW AppleCD 300i $49

Internal 1GB Quantum IDE

SPECIAL

We've got a special on "pulls" from factory refurbished Performa systems. Get 'em while they're hot!

DEMO UNITS $149

Apple 11x17 Color Printer

Great for large-format color printing. The M9500 Apple Color Inkjet printer features 360-dpi print resolution, four large CMYK ink tanks, SCSI and parallel ports for MacOS or Windows support.

BRAND NEW $399

Original Apple 1.44 Floppy

Original Macintosh floppy drive. Please specify part # 661-0474 or #661-0121.

BRAND NEW $129

XCEED Video Card

NEW!

24-bit, large display support for LC and Performa series! Fits in PDS slot.

BRAND NEW $249

Personal LaserWriter LS

Designed for personal use, the Personal LS provides an economical way for you to enter the world of high-quality laser printing! *Features 300-dpi, 4ppm*

REFURBISHED $299
TONER CARTRIDGE SOLD SEPARATELY

Macintosh Quadra 950

- 33-MHz MC68040
- 3 configuration choices
- 1MB VRAM
- 5 NuBus slots
- 16 SIMM sockets
- 3 internal bays

Brand New!

AS LOW AS $799

PowerPort Mercury for PowerBook 520 series

GlobalFax software included. Features data transfer speeds of 19.2Kbps and fax speeds of 14.4Kbps. Fastest standard modem available for the PowerBook 520

BRAND NEW! $149

QuickTake 150

Capture 32 standard-quality images or 16 high-quality images. Includes closeup lens.

RECONDITIONED $399

radius PrecisionColor 8/1600 PCI

- supports extended resolutions
- 2MB VRAM upgradable to 4MB
- *FAST acceleration!*

Best Price Anywhere!!

BRAND NEW $349
SEE OUR WWW SITE FOR MORE FEATURES!

PowerMac 7500/100

PowerPC™

- 100-MHz PowerPC 601+
- 16/500 configuration
- AV input/output
- 4X internal CD-ROM

NEW!

Brand New $1399

LaserWriter 4/600PS

- 600-dpi
- 4 pages per minute
- 2MB RAM upgradable
- RISC processor

factory reconditioned . . $599
TONER CARTRIDGE SOLD SEPARATELY

Global Village Internal 14.4 for Performa

- 14.4 data and fax
- for Performa 6200 6300, 5200 and 5200
- fits seamlessly in comm slot

DEMO (OEM) SPECIAL $29

ClarisWorks 3.0 diskette or CD

The #1 best-selling Macintosh integrated product! Specify diskettes or CD please

NEW $29

Macintosh CPUs

*Performa 635 4/250/CD	$599.
**Performa 6200 8/1GB/CD	$699.
*Centris 650 4/0 ('LC040 processor)	$499.
*Quadra 660AV 4/0	$549.
*Quadra 840AV 0/0	$799.
*Quadra 800 8/0	$799.
**PowerMac 7600/120 16/1GB/CD	$1449
*WGS 95 8/500	$999.
*WGS 8150/80 8/500	$1499.
*WGS 8550/132 16/2GB/CD/DAT	$2299.
*WGS 9150/80 16/1GB/CD	$1699.

Logic Boards on Sale

*PowerMac 7200/90	$349.
*Performa 600	$129.
*LC	$99.
*LC II	$149.
*Mac IIci	$149.
*Quadra 800	$449.
*Quadra 840AV	$499.
*Quadra 950	$499.

More Logic Board Upgrades

*LaserWriter IINT/NTX to IIf	exch. $399 NT/299 NTX
*Mac II or IIx to IIfx	exch. $249
IIvx or IIci to Centris 650	exch. $299

NuBus Adapters & Misc.

1-Gigabyte IDE internal hard drives	**$149.**
Quadra 660AV NuBus Adapter	$49.
Quadra 610 Nubus Adapter	$49.
*Quadra 610 DOS Compatibility Card	$249.
Apple Color OneScanner	$249.
Apple Color OneScanner 600/27	$399.
UMAX UC840 Scanner NEW	$379.
Epson ES-600C NEW	$399.

Video Cards

E-Machines DoubleColor SX 8-bit NEW	$129.
RasterOps 24MX NEW	$199.
Radius PrecisionColor 8/1600 PCI NEW	$349.
Micron XCeed	$299.
**6100 series AV Card with adapter	$349.
*PowerMac HPV VRAM Card (IMB VRAM)	$179.
**Apple QuickDraw 3D Accelerator Card PCI	$299.

Monitors

Apple 14" A/V NEW	$349.
*Apple MultiScan 17"	$599.
**Apple 15" MultiScan	$329.
**Radius IntelliColor Display/20e NICE!	$1299.
**Hewlett-Packard 17"	$499.
**Hewlett-Packard 20"	$699.

Printers

**Apple StyleWriter 1200	$159.
Texas Instruments MicroLaser Pro E NEW	$799.
*Apple Personal LaserWriter LS	$299.
*Apple LaserWriter 16/600	$1399.
**Apple LaserWriter Select 300	$379.
*Apple Personal LaserWriter NTR	$549.
*Apple Portable StyleWriter	$149.
Apple 11x17 Color Inkjet NEW	$399.
*LaserWriter IIf w/5MB RAM	$749.
*LaserWriter IIg w/5MB RAM	$899.
*Hewlett-Packard DeskWriter 560c	$249

Laser toner cartridges sold separately

* indicates refurbished
**indicates factory refurbished

SHREVE Systems

http://www.shrevesystems.com

PowerPC™ is a registered trademark of International Business Machines Corporation

WE STOCK MAC PARTS!

1•800•227•3971

• For your protection all credit card accounts are strictly verified •

FAX (318) 424.9771 • TECHNICAL SUPPORT (318) 424.7987
CUSTOMER SERVICE (318) 424.9791 • PURCHASING/INFORMATION (318) 424.9791
1200 MARSHALL STREET • SHREVEPORT, LOUISIANA 71101

READ ME: Products are refurbished unless indicated as "new". Prices reflect a 2% cash discount and are subject to change without notice. Returns are subject to a 15% restocking fee. Not responsible for typographical errors.

CIRCLE 417 ON READER SERVICE CARD

TRADE YOUR MAC FOR A NEW ONE. We Pay Top $$$ For Your Mac & Mem.

We custom configure and test your system. Specializes in Pre-Press, Publishing, Digital Video products.

WE BUY • SELL • TRADE Competitive Leasing Rates are Available FREE MOUSE PAD WITH EVERY ORDER

PowerMacs

9600 234 MHZ MP	3670
9600 200 MHZ	2775
8600 200 Mhz	2525
8500 180 16-2GB-CD	2290
8500 132 MHZ	1650
7300 180 MHZ	1955
7200 120Mhz	1090

Call For 235& 200 Mhz

4400 200Mhz	1345
7200 /75/90/120	CALL

Call for config. not listed

Powerbooks

3400C 235 Mhz	5295
3400C 200Mhz	4390
1400C 16-1Gb-CD	2355
1400cs 12/750	1485
5300c 16/750	1690

Call for New PB 3400

Demo Powerbooks

PB 180c Color	850
520C / 540C	999/1299
5300c 16/750	1590
145 - 170 -180c-165c	CALL
5300CS 8/500	1190

Upgrades

Same day Upgrade No down Time!!	
Prf 63X to 6300 603-100Mhz	595
PM 7200 to 604-150Mhz	795
8100 to 8500/180Mhz	1625
7500 to 604-150/200	399/850
Upgrade to 200 or180 Mhz	CALL
All PowerBook Upgrade	CALL
7100/ 80 to 7500/ 100	650
PB 520 / 540 to 167 MHZ	735
Q800-840 to 8100	490
PB 5300 to 3400/CD	CALL

Call forUpgrades not listed

Demo Macs

8500 132/120	1590 / 1390
8100 /AV	999
8100/110 16/2GB/CD	1390
Q 800/ 840/950	450/550
7100/80	650
15" / 17" Monitor	240 / 460
PM 7500 /7600	1150/ 1425
8500 150	1850

Performa

6400-200/180 1175/1075
Call for latest prices.
6320/6400/6214/5212/575

Memory

Dimms 16/32/64	79 /145/285
30 Pin 1/ 4/16	8 / 26 / 98
72 Pin 8/16/32	32 /72 /149
2X - 4X-8x CD	50 /119/195
HD 1.GB - 2.GB-4GB	Call
Iomega Jazz Drive	355
Global Village Modem	139

Call For:
Monitors, Printers, Scanners.
All Apple Parts In Stock and
We do Advance exchange.
Leasing Available.

Parts

Floppy 1.44	75
POWER SUPPLIES	CALL
AV Card	$175
Logic Bd 180/ 200Mhz	899/ 999

Call for Logic Boards & more

Computer Graphics & Networking

All prices Reflect cash Discount
Visa, Mastercard, Amex Accepted
<< Prices are subject to Change.>>

TEL: 310-441-4771 10922 W. Pico Blvd. Los Angeles, CA 90064 **Fax: 310-441-4770**

CIRCLE 432 ON READER SERVICE CARD

"Custom Configuration Specialists"
- Dealers & International sales welcome!
- Govt.,University & Corporate P.O's Welcome.
- Best Prices, Service & Delivery.

Infinity Micro

One stop shopping for all your software & hardware needs!

800 • 589 • 1234

TEL 310•470•9426 FAX 310•470•4956

Web Site @ www.infinity-micro.com

GCC Technologies · UMAX · RasterOps · Seagate · Hewlett Packard · QMS · Apple · Daystar

Largest & Most Complete Mail order Source!

2289 Westwood Blvd. Los Angeles, CA. 90064
Email us at: Infinity@themall.net

POWERMAC

4400/200 16/1.2/8XCD/KB	$1395.
4400/200 32/1.2/8XCD/KB	$1695.
6100/60 8/250/CD	$595.
6100/66 16/500/CD/DOS	$695.
6500/225 32/3GB/CD/3F/KB	$1795.
6500/250 32/4GB/CD/ZIP/KB	$2095.
6500/225 48/4GB/CD/3F/MS	$2295.
7100/80 8/700/CD	$895.
7100/80 16/700/CD/AV	$1095.
7200/90 8/500/4XCD	$ 895.
7200/120 16/1G/4XCD	$1095.
7200/120 8/1.2/4CD/PENT.	$1695.
7300/180 16/2GB/CD/KB	$1929.
7300/200 32/2GB/CD/KB	$2245.
7500/100 16/1G/4XC	$1195.
7600/132 16/1.2/8XCD	$1495.
8100/80 16/700/CD	$1295.
8100/100 16/1GIG/CD/AV	$1595.
8100/110 16/2G/CD	$1895.
8500/120 16/2G/4XCO	$1595.
8500/132 16/1G/4XCO	$CALL
8500/150 16/2G/8XCD	$2095
8500/180 32/2GIG/8XCD	$2495.
8600/200 32/2GB/CD/zip/kb	$2795.
9500/132 16/1G/4XCD/ATI	$1995.
9500/150 16/2G/4XCD/ATI	$2295.
9500/180MP 32/2G/8XCD	$2795.
9500/200 32/2GIG/8XCD	$2595.
9600/200 32/4GB/CD/KB	$2975.
9600/200MP 32/4GB/CD/KB	$3895.
9600/233 32/4GB/12XCD	$3349.
9600/233 32/0/12XCD	$2395.

W.G. SERVER'S

7250/120 16/1GB/CD	$1195.
7250/120 16/2GB/CD/INT.	$2095.
7250/120 16/2G8/CD/AS.	$2495.
8550/132 24/2G/CD/DAT	$2895.
8550/132 24/2G/CD/DT/AS	$3395.
8550/200 32/2GB/CD/AS	$4095.
8550/200 32/2GB/CD/DAT	$4295.
9150/120 16/1GB/CD	$1395.
500/132 32/0/CD	$6595.
500/132 32/2GB/CD/DAT	$7845.
700/150 32/1G/CD	$7495.
700/150 48/4G/CD/DAT	$9495.
700/200 48/2GB/CD	$10795.

POWER COMPUTING

PTP 225MHz 16/2GBAV/8XCD/IMS 8MB /KB	$ 2595.
PTP 200MHz 16/2GBAV/8XCD/IMS 8MB /KB	$2395.
PTP 180MHz 16/2GBAV/8XCD/IMS 8MB/KB	$2295.
PowerCTR 180MT 180Mhz 16/2GB/8XCD/K/2	$1799.
PowerCTR. 166MT 166MHz 16/2GB/8XCD/Kb	$1499.
PowerCTR. 150LP 16/1GB/8XCD/KB	$1395.

(PTP=PowerTower Pro Series!)

EZ QUEST JAZZ 1GIG $349.
SONY 2X6CDR DRIVE $ 445.

PERFORMA

5200 8/1GIG/CD	945.
5215 8/1G/CO/14.4	949.
5260 16/800/CD	1195.
5300 16/1GIG	1195.
5400 16/1.2/CD	1195.
6400OS 12/500/CO	745.
6112 8/250/CO	595.
6200 8/1G/CO	677.
6220TV 16/1.2G/CO	677.
6300 16/1.2/CO	795.
6320CD 16/1G/CO	845.
6400/180 32/2G/CO	995.
6400/200 16/2.4/CO	1195.

POWERBOOK

160 12/160/FAX	$ 695.
150 8/240	$695.
190CS 8/500	$1195.
520 8/240	$1095.
520C 20/240/FAX	$1295.
540C 16/500/14.4/100Mhz	$1695.
1400CS /117 16/750/6XCD	$1795
1400C/117 16/1 GIG/CD	$2295.
1400C/133 16/1GB/CD	$2595.
2300C 8/750	$895.
2300C 20/1GB/14.4/new	$1595.
2300C 20/1GB/14.4 modem	$1295.
3400C/180MHz 16/1.3GB	$3545.
3400C/180MHz 16/1.3/GB/CO	$3895.
3400C 200MHz 16/2GB/CD	$4295.
3400C/240MHz 16/3GB/12CD	$5195.
190CS 8/500	$1095.
5300CS 8/500	$1395.
5300CS 16/750	$1495.
5300C 8/500	$1595.
5300C 16/750	$1695.
5300CE/117 32/1GB	$1995.

Global Village 14.4 Fax $ 89.

New series PowerBooks call!

Powerbook Duo 2300C 20/1GIG HD 14.4 FAX & Duo Dock BUNDLE $1599.

MONITORS

Apple 14" Multiscan	$249.
Apple 15" Mutiscan	$279.
Apple 15"AV Multiscan	$345.
Apple 17" Multiscan	$645.
Apple 1705/1710	$545./$835.
Apple 1710AV Multiscan	$ 845.
Apple 20" Multiscan	$1095.
Magnavox 20" Color	$795.
Radius Intellicolor 20e	$895.
Radius PrecisionColor 20"	$895.
RasterOps MC-17 17"	$779.
RasterOps MC-801 21"	$1499.
RasterOps MC-801HR	$1899.
RasterOps MC-21	$1659.
PRESSVIEW 17SR	$1849.
PRESSVIEW 21SR	$2999.
PRESSVIEW 21T/CALI	$1895.
MULTIVIEW 21"	$1595.
SuperMatch 21TXL w/Calib.	$1895.
Sony 100SX/100SF	$359./$435.
Sony 200SX/200SF	$639./749.
Sony 17SE2/20SEII	$849./1795.
Sony 300SF-20"	$1579.
ViewSonic 17GA -17"/.27	$675.
ViewSonic 17EA-17"	$599.
ViewSonic GT-770 17",.25	$695.
ViewSonic GT-800 20"	$1249.
ViewSonic PT-810 21",.25MM	$1599.
ViewSonic P810 21",.25MM	$1495.
ViewSonic P815 21",.25MM	$1649.
ViewSonic G810 21",.25MM	$1455.

SUPERMAC / UMAX

UMAX S900/250DP 64/4GB/CD	$5995.
UMAX S900/200DP 32/2GB/CD	$3695.
UMAX S900/180DP 32/2GB/CD	$2895.
UMAX S900/250 32/2GB/CO	$4295.
UMAX S900/233 32/2GB/CD	$3495.
UMAX S900/180Mhz 32/2.1HO/6Pci/KB.	$2295.
UMAX S900L/225Mhz 32/2GB/8x/8M Vram	$2645.
UMAX S900/200Mhz 32/2.1 HD/6Pci/KB	$2595.
UMAX S900/180Mhz 32/2.1HO/6Pci/KB	$2895.
UMAX C500/180Mhz 16/1.2GB/8XCD	$2249.
UMAX J700/150Mhz 16/2.1/4PCI/KB	$1779.
UMAX J700/180Mhz 24/2.1/IMS 2MB	$1799.
UMAX C600/240Mhz 24/2.1/28.8Mdm.	$1695.
UMAX C600/200Mhz 16/1.2GB/8X/28.8	$1395.
UMAX C600/180Mhz 16/1.2HD/8xCd/28.8	$1185.
UMAX C500/160Mhz 16/1.2HD/8Xcd/KB	$999.
UMAX 15" /17"Color Display	$389.
UMAX 21" Color Display	$1629.

PRINTERS

StyleWriter II	$199.
StyleWriter 1200	$149.
StyleWriter 1500	$169.
Port. Stylewriter 2200	$389.
Stylewriter 2400	$199.
StyleWriter 2500	$249.
LaserWriter 4/600	$695.
LaserWriter 12/640	$1479.
LaserWriter 12/600	$1495.
Color LaserWr. 12/660PS	$5295.
Epson Stylus 600	$295.
Epson Stylus 800	$439.
Epson Stylus Pro-XL	$1445.
Epson post script option	$349.
Epson Ethernet option	$349.
Fargo Primera Pro	$1345.
Fargo Pictura 310	$2195.
Fargo Pictura 310ethernet	$3279.
Fargo Postscript option	$345.
Elite XL-1212 Laser	$1245.
Elite XL-608 w. toner	$2195.
Elite XL-616 11X1,600dpil	$2395.
Elite XL-808 11X17,800dpl	$2649.
Elite XL-1208 super size	$3779.
HP DeskWriter 340 Port.	$329.
HP DeskWriter 680c	$299.
HP DeskWriter 855cxi	$479.
HP LaserJet 1600CM	$1679.
HP LaserJet 4MV	$2195.
HP LaserJet 5SIMX	$5395.
HP Color Laser 5M	$1995.
HP Laserjet 6MP	$895.
HP LaserJet 5MP	$645.

MOTOROLA STARMAX

3000/180 16/1.2GB/8XCD	$ 1195.
3000/180 32/25.GB/8XCD	$1345.
3000/200 16/1.2GB/8XCD	$1429.
3000/200 32/2.5GB/8XCO	$1599.
4000/160 16/1.2GB/8XCD	$1449.
4000/160 32/2.5GB/8XCO	$1649.
4000/200 16/1.2GB/8XCO	$2099.
4000/200 32/2GB/8XCD	$2199.

SOFTWARE PACKAGES

Adobe Photoshop 3.05	$ 279.
Adobe Illustrator 6.0	$ 279.
Adobe Pagemaker 6.5	$ 279.
Adobe After Effects	$1245.
Quark Express package	$ 649.
Microsoft Office package	$ 295.

APPLE RELATED CARDS

Centris 610/660AV nubus adapter	$19.
Apple 486DX-6100 Dos card	$149.
Apple Pentium 100Mhz card	$895.
IMS Twin Turbo 8MB PCI	$545.
ATI Xclaim-VR 4Mb card	$279.
Precision Color 24/1600	$395.
Radius Thunder30-1600 6MB	$679.
Radius Thunder Color/30-1600	$1899.
Radius Thunder Power/30-1600	$845.
Radius Thunder Power/30-1920	$1179.
Radius Thunder 3D Pci card	$2749.
Truevision Bravado 1000	$589.
TrueVision Targa 1000	$CALL.
TrueVision Targa 2000Pci	$2695.
TrueVision Taga 2000Pci Pro	$3095.

SCANNERS

AGFA Transparanci option	$379.
AGFA StudioScan II Color	$795.
AGFA Arcus II w. transparanci	$1729.
EPSON ES-1000C COLOR	$585.
Epson Exp. 636 Executive	$849.
Epson Exp. 636 Artist 600dpl	$1285.
Epson Exp. 636 Professional	$1695.
Microteck Scanmaker E3	$345.
Microteck ScanMaker E6 STD	$569.
Microteck ScanMaker E6 Pro	$845.
Microteck ScanMaker III	$1195.
Microteck ScanMaker 35T Plus	$745.
Microteck ScanMaker Internet	$565.
Umax Vista S6E 300dpl color	$299.
Umax Vista S12 600dpi,OCR	$599.
Umax Vista S12 600dpl,Pgmngr	$695.
Umax PowerLook II w. UTA	$1795.

Used powerbooks
160/180/540/230/280
all Available in stock please call.

DIGITAL CAMERA'S

Ricoh ROC-2 w. Monitor	$949.
Kodak DC 25	$459.
Kodak OC 20	$179.
Kodak DC 50	$637.
Casio QU-300 w. monitor	$679.

PINNACLE MICRO

Apex 4.6GB optical	$1485.
Vertex 2.6GB optical	$1349.
RCD 4x4 Mac	$877.

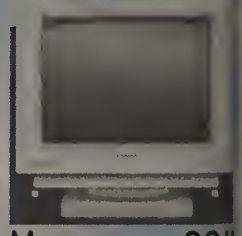
All MEMORY UPGRADES AVAILABLE PLS. CALL!

PowerBook 1400C-117 32/1.2/CD/28.8 Global Village $2495.

FedEx GROUND 3 DAY SHIPPING INSTEAD OF 7 DAYS AVAILABLE NOW! THAT'S WHATS MAKING US SO GREAT!!! Cheeper, Faster & better

Global & Supra Faxs

Teleport Gold II 14.4	$29.
Teleport Platium 33.6	$139.
Teleport Speaker/voice	$189.
Powerport Platinum	$189.
Powerport Platinum Pro	$429.
Supra 33.6 fax modem	$149.
Supra 33.6 fax/voice	$289.



Magnavox 20" Multiscan Color $795.

TRADE IN YOUR: old PowerMac or PowerBook with newer units

Leasing services also available.

GE 3 YEAR ON-SITE WARRANTY "Over 2700 products to choose from!"

$ 701 To $ 1200	$1201 To $ 2000	$2001 To $ 3000	$3001 To $ 4000	$ 4001 To $
$ 135.95	165.95	189.95	$ 219.95	$ 249.95

• Govt.,& university P.O.'S welcome • Prices are cash discounted and are subject to change without notice. We accept Visa, Mast.& Amex.•

CIRCLE 501 ON READER SERVICE CARD

MOTOROLA
UMAX
POWERCOMPUTING

MAC TO GO™

your #1 Apple® Super Source™

Power Macintosh® 4400 200MHz 16/2G/CD/KB $1349 200 Off 32/2G/CD/KB $1659	Power Macintosh® 7300 180MHz 16/2G/CD/KB $1869 200MHz 32/2G/CD/KB $2229	Power Macintosh® 6500/225 32/3GB/12XCD $1785.00	Power Macintosh® 6500 250MHz 32/4G/CD/Zip $2089 250MHz 48/4G/CD OFC/32/Zip $2379	Power Macintosh® 6500/300 64/4GB/CD/ZIP/KB $2729.00
Power Macintosh® 8500/180 32/2GB/CD/Refurb. $2199.00*	Power Macintosh® 8600/200 32/2GB/12XCD/ZIP/KB $2729.00	Power Macintosh® 9500/180MP 32/2GB/CD $2799	Power Macintosh® 9600 200MHz 32/4G/CD/KB $2959 200MP 32/4G/CD/KB $3889	Power Macintosh® 9600/233 32/4GB/12XCD $3199
PowerBook® 5300C/100 8/500/New $1599.00	PowerBook® 1400cs/117 16/750/CD $1759.00	PowerBook® 1400C/133 16/1GB/CD $2589.00	PowerBook® 3400C/200 16/2GB/6xCD $4255.00	PowerBook® 3400C/240 16/3GB/6xCD $5299.00
Performa® 6200CD 8/1GB/CD/KB $599.00*	Performa® 6400/180 16/1.6GB/CD/KB $1185.00	Performa® 6400 200MHz 16/2.4G/CD $1398 200 Vid Video Edition $1879	Apple® 15" 15" Mntr, Refurb. $289.00	SONY® 200sf 17" Monitor, .25 DP,New $729.00

PERFORMA®

Sale!

6220CD 8/1GB/TV/KB	699*
6116CD 8/700/CD/KB	549*
6220CD 16/1GB/CD	699*
6360/160 16/1.6/CD/KB	949
6400/180 16/1.6/8XCD	1199
6400/200 16/2.4/8XCD	1398
6400/200 Video Edit.	1879

POWERBOOK®

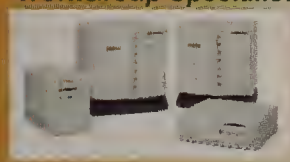
1400CS 12/7500/Passive	1579
1400CS 16/7500/CD/Pass	1759
1400C/117 16/1G/CD	2589
1400C/133 16/1G/CD	2599
3400C/180 16/1.1G/CD	3875
3400C/200 16/2GB/CD	4255
3400C/240 16/3GB/CD	5299
5300Ce/117 16/1.1GB	2499
5300C 8/500	1599
2300C 8/750	1189*
2300C 20/1.1/ MDM	1349*

Apple® Monitors

MS 14"/15"	255*/299*
MS 15"/15AV	379/426
MS 1705/1710	609/749
MS 1710AV	849
MS 20"	1349
AppleVision 850	1669
AppleVision 850AV	1799

WorkGroup®

WorkGroup Specialist!



6150/66 16/1.2/INTRNT	1299
7250/120 16/2GB/CD	1579
7250/120 16/2GB/INRNT	1929
7250/120 16/2GB/CD/AS	2299
7350/180 48/4GB/12XCD	2695
7350/180 48/4GB/CD/Intrnt	3139
7350/180 48/4GB/CD/AShr	3339
9650/233 64/4GB/CD/Intrnt	5329
9650/233 64/2X4GB/CD	5679
9650/233 64/2X4GB/CD/AS	6339
9650/233 64/4GB/AS/DAT	6339
500/132 32/CD/BASE	6399
500/132 32/2GB/DAT/CD	7939
700/150 32/1GB/CD	7575
700/150 48/4GB/DAT/CD	9399
700/200 48/2-4GB/CD	10789

Apple® Printers

StylWrtr 2200	249
StylWrtr 1500/2500	214/263
StylWrtr 4100/4500	237/327
StylWrtr 6500	449
LsrWrtr 4/600 PS	779
LsrWrtr 12/640 PS	1439
LsrWrtr 16/600 W/Tnr	2088
LsrWrtr 12/660Ps Kit	5489

UMAX®

C500/180 16/1.2/CD/28.8	1039
C600/200 16/2GB/CD/28.8	1399
C600/240 16/2GB/CD/28.8	1589
J700/180 24/2GB/CD/33.6	1859
S900/200 32/2GB/CD/KB	2549
S900/233 32/2GB/CD/KB	2885
S900/250 32/2GB/Zip	3559
S900/200DP 32/2GB/CD	3159
S900/250DP 64/4GB/Zip	6259

MOTOROLA

3000/200 DT, Base	1289
3000/200 MT, SOHO	1649
3000/200 MT, Enterprise	1859
3000/240 MT, SOHO	2089
4000/200 MT, Base Sys	2379
4000/200 MT, Enterprise	2479

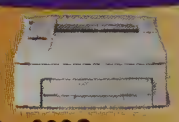
SONY®

100SX/100SF 15"	379/449
200SX/200SF 17"	639/729
17SE2	839
300SFT 20" *New!*	1549
20SE2 1600X1280 .25	1839
GDM-W900T 24"	4199

NEC

M500/M700	379/737
XV15+/XV17+	369/689
P750/XE21	869/1569
E1100/P1150	1349/1525

HEWLETT PACKARD



DeskWrtr 680C	289
DeskJet 340 Prtbl Mac	318
DeskJet 870CXi	375
DeskJet 1600CM	1599
LaserJet 6MP New!	829
Color LaserJet 5M	4799
LaserJet 4MV	2099
LaserJet 5M	1499
LaserJet 5SI MX	3349
ScanJet 4C Mac	719
DesignJet 755CM Plotter	Call

EPSON

Expression 636 Exec	739
Expression 636 Artist	929
Expression 636 Proff.	1299
Stylus Color 600	289
Stylus Color 800	429
Stylus Color ProXL	1389
Stylus Color 3000	1689

AGFA

Arcus II	1479
SnapScan	279
StudioScan IIsi	579
StudioStar LE	709
StudioStar Full Photoshop	879

UMAX

Vista S6e /Pro	279/529
Vista S12 Deluxe	429
Vista S12LE/Pro	489/619
PowerLook II Pro	1285

TARGA

Bravado 1000	539
Targa 2000	2685
Targa 2000 Pro	2899
Targa 2000 Rtx	7849
Targa 2000 Pro w/ 8GB HDD Array	5399

WACOM

ArtPad ii	129
Artz ii 6x8	298
Artz ii 12x12	415
Artz ii 12x18	685

MICROTEK

ScnMkr E3	299
ScnMkr E6	547
ScnMkr E6 Pro	829
ScnMkr	1299

IMS Video

TT 2MB PCI	197
TT 4MB PCI	326
TT 8MB PCI	550

NEWTON

2000 5MB	929
2000,5MB,KB	999

ViewSonic

15GS	15"	339
15GA	15"	369
17GS	17"	569
17GA	17"	607
17PS	17"	699
GT770	17"	629
P810	21"	1349
PT770	17"	688
PT813	20"	1459
P815	21"	1539
G810	21"	1399

GLOBAL VILLAGE

Pltnm 33.6	135
Pltnm 56K	199
Pltnm PC	199
Pltnm Pro	319

IOMEGA

ZIP 100	139
JAZ 1GB	379
100/1GB	14/79

Nikon

Electronic Imaging

CoolScan	1145
Super CoolScn	1639

FWB

SldgHmr 8200	2799
SldgHmr 17400	4589
Hmr OLT 15GB	2539

SledgeHammer PCI UW

Call Toll Free! **1-800-946-6221**

E-Mail: mactogo@knl.com Customer Service: 310.444.1122 Facsimile : 310.444.1130

CIRCLE 477 ON READER SERVICE CARD

1-800-334-KIWI

Kiwi Computers • Save on refurbished Macs

Performas

630 8/250 2xCD	$399
630 8/1.2 Gig 4xCD	$449
6200/75 8/1 Gig 4xCD 14.4	$575
6300/100 16/1.2 Gig 4xCD 28.8	$749
6320/120 16/1.2 Gig 4xCD TV 28.8	$849
6400/180 16/1.6 Gig 8xCD 28.8	$999
6400/200 16/2.4 Gig 8xCD 28.8	$1175

Performa prices listed above are CPU only.

Power Macs

7100/80 8/700 2xCD	$849
7200/120 16/1.2 Gig 8xCD	Call
7600/120 16/1.2 Gig 4xCD	$1349
7600/132 16/1.2 Gig 8xCD	$1449
8500/150 16/1.2 Gig 8xCD	$1799
8500/180 32/2 Gig 8xCD	$2299
9500/132, 150 & 200	Call

Upgrades

Performa 630 series to 6200/75mhz	$325
Performa 630 series to 6300/100mhz	$399
Performa 630 series to 6320/120mhz	$499
Performa 6200 to 6320/120mhz	$399
Performa 6200 to 6400/180mhz	$599
Performa 6200 to 6400/200mhz	$775
PowerMac 7200/120 to 7600/132	$699
Powerbook 520c & 5300cs to 1400cs	Call

Monthly Specials

GV Platinum internal 28.8 Modem for P5200/6200	$49
Apple TV/Video card for P630, 6200, 6300	$99
Apple 4x internal CD-Rom	$65
Performa and PowerMac logic boards	Call
8mb 72 pin SIMM	$33
16mb 72 pin SIMM	$65
Apple Plaintalk Microphone	$15
Apple Design Keyboard	$45

Visa/Mastercard/American Express No Surcharge.

Refurbished products have a 90 day warranty • Returns subject to a 15% restocking fee • Prices subject to change without notice.

Call Toll Free:1-800-334-5494
International: 310-553-4507 Fax: 310-286-9667
Hours: Mon-Fri 8am to 6pm, Sat 9am to 2pm • Better Business Bureau Member
Kiwi Computer, P.O. Box 67381, Los Angeles, CA 90067

CIRCLE 404 ON READER SERVICE CARD

MACS & POWERBOOKS WANTED

TOP $$$ PAID

MAC Solutions

Any Quantity • Fast Turnaround • FedEx check delivery
We Buy, Sell & Trade Macs

1416 Wilshire Blvd.
Santa Monica, CA 90403
www.macsolutions.com
VISA-MC-AMEX no surcharge

MAC Solutions

Apple® Authorized Service Provider and Value-Added Reseller

TRADE-UPS WELCOME!

CHECK OUT THESE PRE-OWNED MACS

Model	Configuration	Price
PwrBook 5300c	16/750	$ 1,600
PwrBook 5300cs	16/500	1,300
PwrBook 540c	12/320/modem	1,300
PwrMac 8500/120	16/1 gig/CD	1,500
PwrMac 7200/75	8/500/CD	800
PwrMac 6100/60	8/230/CD	675
64mb DIMMS	(Call for other memory)	272

New Macs also available for Walk-In Customers

(800)80-WE-BUY

Tel:(310) 394-0001 Fax:(310) 394-7744

Many more items usually available - call for info!! Stock changes daily! Subject to prior sale. #612

CIRCLE 473 ON READER SERVICE CARD

800-345-1234 DATA www.datamicro.com

Micro Computer Inc.

3847 Grandview Blvd.
Los Angeles, CA 90066

Sales: (310)-398-3300 Fax: (310)-391-2488
Dealers & International Sales Welcome e-mail: datamicro@earthlink.com

PowerMacs

	Sale	Lease
6100/66 8/500/CD	$695	22
6100/DOS 16/500/CD	$895	27
4400/200 16/2GB/CD	$1369	41
7200/120 16/1GB/CD	$1095	32
7300/180 16/2GB/CD	$1879	57
7300/200 32/2GB/CD	$2099	66
7500/100 16/500/CD		CALL
7600/132 16/1GB/CD	$1595	45
8500 & 9500 Series		CALL
8600/200 32/2GB/CD	$2795	79
9600/200 32/4GB/CD	$2895	91
9600/MP 32/4GB/CD	$3895	135
9600/233 32/4GB/CD	$3250	99

PowerBooks

190cs 8/500	$1295
1400cs/117 12/750	$1499
1400cs/117 16/750/CD	$1749
1400c/117 16/1GB/CD	$2375
1400c/133 16/1GB/CD	$2499
2300c 8/750/Modem	$1099
2300c 20/1GB/Modem	$1399
3400c/180 16/1GB/CD	$3799
3400c/200 16/2GB/CD	$4199
3400c/240 16/3GB/CD	$5350

Call for Software & Accessories not listed

Performas

6116 8/700/CD	$695
6116/DOS 16/700/CD	$895
5200 8/500/CD/15"	$795
6360 16/1GB/CD	$979
6400/180 16/1GB/CD	$995
6400/200 32/2.4GB/CD	$1195
9600/233 32/4GB/CD	$3250

Monitors

MultiScan 14"	$229
MultiScan 15"	$299
1705 (17")	$599
MultiScan 20"	$1475
radius 15" Grayscale	$199
Pivot 15" Grayscale	$295
20" Grayscale	$695
17" Color	$645
IntelliColor 20"	$1099
Precision 21" Color	$1495

GCC TECHNOLOGIES ATI LM LASERMASTER QMS Microtek DayStar **Products in stock. Call for Best Price.**

Printers

LaserWriter 16/600	$1995
LaserWriter 12/660	$3999
LaserWriter 12/640	$1399
LaserWriter 360	$1249
StyleWriters	Lowest Price.
HEWLETT PACKARD LJ. 5SIMX	$3495
LaserJet 5M	$1495

MOTOROLA StarMax

T3000/200 32/2.5GB/CD	$1695
T3000/240 32/2.5GB/CD	$2095
T1000/160 32/2.5GB/CD	$1725
T1000/200 32/2.5GB/CD	$2395
T1000/200 32/4.3GB/CD/Zip	$2795

UMAX SuperMac

500/600/700 Series	CALL
S900/200 32/2GB/CD/MP	$3595
S900/225 32/2GB/CD	$3195
S900/233 32/2GB/CD	$3345
S900/250 32/2GB/CD/Zip	$4395

Scanners

Agfa Arcus II	$1475
Agfa Studio Star LE	$689
UMAX PowerLook II	$1249
EPSON Stylus 3000	$1649

DIGITAL

Media 100qx	$3995
Bravada 1000	$629
Targa 1000PCI	$1789
Targa 2000PCI	$2698
IX Micro Twin Turbo SMB	$595
Kodak DC 25	$459
Kodak DC 50	$859
Apex 4.6 Optical Drive	$1685
Raid Array Hard Disks	CALL

We Specialize in Business Leasing
Prices are subject to change without notice!

Government, Universities & Corporations P.O.'s are accepted

CIRCLE 464 ON READER SERVICE CARD

POWERMAC 7300
180Mhz 604e 16/2GB/12xCD/L2 Cache
$1729

PERFORMA 5400
180MHz/16/1.6G CD/KB/15"Mon
$1329

APPLE COLOR PORTABLE STYLE WRITER 2200
$279

iCN
INNOVATIVE COMPUTER & NETWORKING INC.

APPLE PROCESSOR UPGRADE
7600/8500/9500 TO
132MHz/150MHz/180MHz/200MHz
$135/$199/$579/$779

POWERMAC 9600MP
200 MHz/32/4G/CD/KB
$3599

PB 3400C
200MHz/16/2GB/CD
$4289

PB 1400C
133 Mhz/16/1GB/CD
$2495

POWERMACS

► 9600
233Mhz 604e/32/4GB/12xCD/L2Cache $2995
200 Mhz MP604e/32/4GB/12xCD/L2Cache .$3599
200 Mhz 604e/32/4GB/12xCD/L2Cache ..$2849

9500
200Mhz 32/2GB/CD* .$2479
180Mhz MP 32/2GB/CD* $2699
150Mhz 16/1GB/CD* .$1849
132Mhz 16/1G/CD* ..$1749
120Mhz 16/1G/CD* ..$1549

► 8600
200Mhz 604e/32/2GB/12XCD/ZIP/L2 .....$2699

8500
180Mhz 32/2GB/CD* $2349
150Mhz 16/1G/CD* $1879
120/132Mhz 16/1G/CD* $1549/1649

7600
132Mhz 16/1.2G/CD* $1499
120Mhz 16/1.2GB/CD* $1399

► 7300
200 Mhz 604e 32/2GB/12xCD/L2 .....$2149
180Mhz 604e 16/2GB/12xCD/L2 Cache $1729

► 7200
120Mhz 16/1.2GB/CD/L2 Cache* $1049

► 6500
300 Mhz 32/4GB/12XCD/L2/Video/TV ....$CALL
250Mhz 48/4GB/12XCD/L2/Zip/MS $2379
250Mhz 32/4GB/12XCD/L2/ZIP $2099
225 Mhz 32/3GB/12XCD/L2 .....$1879

► 4400
200Mhz 16/2GB/CD/L2 Cache $1379

PRE-OWNED MAC

MAC II SI 5/80* $189
MAC II CI 5/80* $233
MAC II CX 4/80* $165

PERFORMAS

5400 180Mhz/16/1.6GB/CD/B-in Mon/KB $1329
6360 160MHz/1.2GB/8xCD/KB $1029
6400 180MHz/16/1.6GB/8xCD/L2C/KB* $999
6400 200MHz/16/2.4GB/8x-CD/L2C/28.8 Mod/KB*$1149
CALL FOR PRICES ON OTHER MODELS

QUADRAS

Q950 8/0* $759
Q840AV 0/0* $699
Q800 8/0* $649
Q650 8/0* $599

TOSHIBA, MOTOROLA AND UMAX AUTHORIZED DEALER

APPLE VISION 850 Monitor
$1479

DUO UPGRADE
DUO200 Series To 2300(100Mhz) **$649**

UMAX

SUPER MAC S900L/225 Mhz 604e/32/2.1GB/8XCD/IMS 8MB .$2999
SUPER MAC S900/250 Mhz DP 604e/32/2x2GB/12XCD/ZIP/KYBD ..$6035
SUPER MAC S900/250 Mhz 604e/32/2GB/8XCD/ZIP/KYBD ..$4225
SUPER MAC S900/233 Mhz 604e/32/2GB/8XCD/KYBD $3185
SUPER MAC S900/180DP Mhz 604e/32/2GB/8XCD/KYBD .$2845
SUPER MAC J700/180 Mhz 604e/24/2GB/8XCD/KYBD .$1739
SUPER MAC C600/240 Mhz 603e/24/2GB/8XCD/KYBD/Modem .$1479
SUPER MAC C600/180 Mhz 603e/16/1GB/8XCD/KYBD/Modem $1045
UMAX AUTHORIZED SERVICE CENTER

MOTOROLA

AMT 3200 603e/200Mhz/32/2.5GB/8XCD/256K/28.8Mod $1599
AMT 3200-6S 603e/200Mhz/32/2.5GB/8XCD/512K/28.8Mod $1799
ADT 3200-6 603e/200Mhz/16/1.2GB/8XCD/256K $1299
Motorola Authorized Dealer

PRE-OWNED POWERBOOKS

165 4/80 / Modem $569
160 4/80 / Modem $529
140 4/40 .....$349
DUO 230 12/240/ Modem $449
Call For Other Available Models

POWERBOOKS

3400c 240 Mhz/16/3GB/CD $5399
3400c 200 Mhz/16/2GB/CD $4289
3400c 180 Mhz/16/1.3GB/CD $3899
1400cs 117 Mhz /16/750/CD $1779
1400c 133 Mhz/16/1GB/CD $2495
DUO 2300c 100Mhz/8/750* $999
Power Book 500 & 5000 Series In Stock

FOR CURRENT PRICES VISIT OUR WEB SITE AT:
http://www.icni.com

Prices Subject to Change Without Notice
All Prices reflect 3% Cash Discount • *: Refurbished

1.888.505.2211
Fax:(310) 445-6611 Tel:(310) 445-6600
FAX TOLL FREE FROM JAPAN: 00-31-114211
2045-B S. Barrington Ave. LA, CA 90025

APPLE PARTS

Original Apple 8xCD-ROM $159
ORIGINAL APPLE 8XCD FOR PB 1400 SERIES .$199
1.44 FLOPPY DRIVE $99
We Carry All Apple Parts In Stock

MONITORS

APPLE 20" Multi $1389
APPLE 20" VISION 850 $1479
APPLE 1710AV $839
APPLE 1710 Vision $749
APPLE 1705 Multi $619/$509*
APPLE 15" AV Multi $389
APPLE 15" Multi .$369/$309*
NEC XV15"+/XV17"+ $399-699
NEC M500/M700 .....$399-759
NEC 21" P1150/E1100 .....$1789-1489
SONY 15" 100SX/15"100SF ...$395-465
SONY 17" 200SX/17"200SF $659-759
SONY 20" 300SF/ 20"SE2 .$1579-1849
VIEWSONIC 15" GS/ GA $365-409
VIEWSONIC 17"GA/ PT770 .....$659-749
VIEWSONIC 20" P810/ P815 .....$1395-1589
VIEWSONIC 20" PT813/ G810 .....$1649-1349

PRINTERS

APPLE LaserWriter 12/660 .....$5399
APPLE LW 4/600 .....$769
APPLE SW 2200 .....$279
APPLE SW 2500 .....$279/$219*
APPLE SW 1500 .....$209

► NEW ITEMS APPLE SW 4100 /4500/ 6500 ...$CALL
GCC XL608 600dpi/8ppm/11.7x20 .....$2099
GCC XL808 800dpi/8ppm/11.7x20/Ethernet $2799
HP LASER JET 6MP $859
HP DESK JET 870 CXI $489
HP LASER JET 4MV Prints 11x17 .....$2289
HP LASER JET 5M $1499
EPSON STYLUS COLOR PRO XL Wide 720dpi $1399
EPSON STYLUS 600/800 COLOR .....$289/$419
CALL FOR PRICES ON OTHER MODELS

SCANNER

AGFA Arcus II Transp/Full Photoshop $1489
AGFA Studioscan IIsi Photo/ LE $549
AGFA Studiostar Photo/ LE $779
UMAX Powerlook II Transp/Full Photo. $1299
UMAX ASTRA 1200S - Photo Delux/Full Photoshop.$479/$699
UMAX ASTRA 600S / Photo Delux. $279
EPSON ES-1000C 3200x3200 dpi. $549
VISIONEER PaperPort-VX Strobe $295
CALL FOR PRICES ON OTHER MODELS

CIRCLE 439 ON READER SERVICE CARD

MICRO OUTLET

http://www.microoutlet.com
email:sales@microoutlet.com

800 · 801 · 4MAC FAX · 310 · 533 · 0501

VISA · MasterCard · Discover Novus

Free Utilities CD's With Every CPU Order!

Power Mac 9600/8600 Series

PowerMac 8600/200
32/2GB/12XCD/ZIP
$2899.00

9600/233	32/4GB/12XCD/L2	$ 3249
9600/233	96/4GB/12XCD/L2	3635
9600/233	0/0/12XCD/L2/Key	2479
9600/200	MP32/4GB/12XCD/L2	3B99
9600/200	32/4GB/12XCD/L2	2999
9600/200	96/4GB/12XCD/L2	3334
9600/200	0/0/12XCD/L2	2279
9500/1B0	MP 32/2GB/BXCD/L2	2799
8600/200	32/2GB/12XCD/L2/Zip	2B99

Power Mac 4400/7300 Series

PowerMac 7300/200
32/2GB/12XCD
$2295.00

4400/200	32/2GB/12XCD-SBUS	$ 1645
4400/200	16/2GB/Ethernet	1359
7300/200	32/2GB/12XCD/L2	2295
7300/1B0	16/2GB/12XCD/L2	1925
6500/300	4B/4GB/CD/ZIP/33.6	2795
6500/275	32/4GB/CD/CREAT STUDIO	2749
6500/250	4B/4GB/CD/ZIP/33.6/SB	2425
6500/250	32/4GB/1CD/ZIP/33.6/HB	1999
6500/225	32/3GB/12XCD/33.6/HU	1779

Powerbooks

PowerBook 3400C/200
16/2GB/6XCD
$4399.00

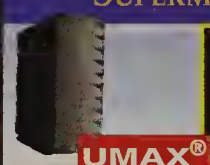
3400C/240	16/3GB/12XCD/M/E/F	$ 5499
3400C/200	16/2GB/6XCD/M/E/F	4399
3400C/200	32/2GB/6XCD/M/E/F	4554
3400C/180	16/1.3GB/6XCD/M/E/F	4250
1400C/133	16/1GB/6XCD	2899
1400CS/117	16/750MB/6XCD	1799
1400CS/117	16/750MB/6XCD/MOD	1995
1400CS/117	12/750MB	1649
1400CS/117	12/750MB/MODEM	1754

StarMax Series

StarMax 5000/300-G
32/4.3GB/16XCD
$3049.00

3000/200 DT-6	16MB/1.2GB/8XCD/L2	$ 1329
3000/200 MT-6S	32MB/2.5GB/8XCD/L2	1699
3000/240 MT-6S	32MB/2.5GB/8XCD/L2	2125
3000/240 MT-6E	32MB/2.5GB/16XCD/L2	2299
4000/160 MT-6S	32MB/2.5GB/8XCD/L2	1829
4000/200 MT-6	32MB/2.5GB/8XCD/L2	2325
4000/200 MT-6E1	32MB/4.3GB/16XCD/L2	2599
5000/300	32MB/4.3GB/16XCD/L2	2375
5000/300 - G	32MB/4.3GB/16XCD/L2	3049

SuperMac Series



SuperMac S900/200
32/2GB/8XCD
$2825.00

C600/180	16/1.2GB/BXCD/KEY/28.8	$ 1149
C600/240	16/2.1GB/8XCD/KEY/28.8	1635
J700/150	16/2GB/6.7XCD/KEY/VCard	1769
J700/180	24/2GB/6.7XCD/KEY/VCard	1919
S900/250	Dual Proc. 32/4GB/12XCD	6399
S900/250	32/2GB/8XCD/KEY/VCard	4499
S900/200	32/2GB/8XCD/KEY/VCard	2825
S900/200	Dual Proc. 32/2GB/8XCD	3725
S900/180	Dual Proc. 32/2GB/8XCD	3099
S900/180	32/2GB/8.0CD/KEY/VCard	1959

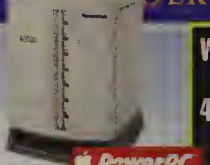
Apple Multiscan 850 AV 20"
$1895.00

Monitors		
Apple	Multiscan 15" Refurb	$ 289
Apple	Multiscan 15" AV	399
Apple	Multiscan 1705	609
Apple	Multiscan 1710	739
Apple	Multiscan 1710AV	B19
Apple	Multiscan 20"	1499
Hitachi	All Newer Models	Call
Iiyama	All Newer Models	Call
Mitsubishi	All Newer Models	Call
NEC	All Newer Models	Call
Radius	All Newer Models	Call
Sony	All Newer Models	Call
Viewsonic	All Newer Models	Call

Epson Stylus Color 800
$419.00

Printers		
Apple	Stylewriter 1500	$ 199
Apple	Stylewriter 2500	279
Apple	LaserWriter 4/600	799
Apple	LaserWriter 12/640	1489
Epson	Stylus Color 600 1440dpi	299
Epson	Stylus Color 800 1440dpi	419
Epson	Stylus Color Pro XLWide	1429
GCC	Elite XL 608 600 DPI	2259
GCC	Elite XL 808 B00 DPI	2B39
GCC	Elite XL 1208 1200 DPI	5619
HP	LaserJet 6MP	879
HP	LaserJet 4MV	2549
HP	Color LaserJet 5M	4899

Servers



WorkGroup 9650/233
48/4GB/CD/FW/DAT/AS
$6379.00

Workgroup Servers		
7350/1B0	4B/4GB/12XCD	$ 2695
7350/1B0	48/4GB/12XCD/AShare	3375
9650/233	48/4GB/FW/Internet	5399
9650/233	48/4GB/FW/DAT	5749
9650/233	64/4GB/FW/DAT/AShare	6379
Network Servers		
500/132	32/1GB/CD	$ 6795
700/150	48/4GB/CD/DAT/UNIX	9450
700/150	32/1GB/CD/UNIX	7549

Removeable Hard Drives

Iomega	Zip 1DDMB & Cartridge Ext.	$ 149
Iomega	Zip 100MB & Cartridge Int.	166
Iomega	Jaz 1GB Retail & Cart. Int.	299
Iomega	Jaz 1GB Generic & Cart. Ext.	359
Iomega	Jaz 1GB Retail & Cart. Ext.	399
Iomega	Jaz 1GB Retail & 4 Cart. Ext.	599
Syquest	EZ 23D MB & Cartridge	239
Syquest	Syjet 1.5GB & Cartridge Int.	3B9
Syquest	Syjet 1.5GB & Cartridge Ext.	459
Syquest	Syjet 1.5GB & Cart. House Ext.	449
Fujitsu	84D MB Dynamo Int.	479
Fujitsu	84D MB Dyna. House Ext.	559
Fujitsu	84D MB Dynamo Ext.	599
Olympus	23D MB PowerMo Ext.	349
Olympus	2.6 GB PowerMo Ext.	1699
Pinn. Micro	4.6 GB Apex Ext.	1499
VST	230MB Opt. Dr. PB 5300	375
VST	840MB Opt. Dr. PB 5300	389

Keyboards/Modems

Keyboards		
Apple	Design Keyboard	$ 69
Apple	Extended Keyboard II	119
Radius	Extended Keyboard	49
Modems		
Farallon	Netopia (ISDN)	$ 329
Global Village	Teleport 33.6 internet	139
Global Village	Teleport 56K V.34 14.4 Fax	225
Global Village	PowerPort PC Card	219
Global Village	Platinum Pro PC Card	330
Supra	Express Modem 33.6	99
Supra	ExpressFax Modem 56K V.34	159
Supra	Express 56K Speakerphone	179
U.S. Robotics	33.6 PC Card Cellular/Ethernt	329
U.S. Robotics	Sportster 56K	189
U.S. Robotics	Sportster 33.6 Internet	189

Peripherals

Cache Cards		
256K	Performa 6400 Series	$ 110
256K	L2 Dimm, 7200-8500 Series	49
256K	L2 Dimm, 9500 Series	139
512K	L2 Dimm, 7200-9500 Series	129
Removable Cartridges		
Syquest	200MB or 270MB	$ 25
Syquest EZ	135MB / 23DMB	19/25
Iomega	Zip 1DDMB/JAZ 1GB	16/83
Nomai	200MB	25
Video Cards		
ATI	ExclaimVR 2mb V-card	$ 229
ATI	ExclaimVR 4mb V-card	249
IMS	Twin Turbo 4mb V-card	389
IMS	Twin Turbo 8mb V-card	549
Number 9	Imagine 128 8mb V-card	725
TrueVision	Bravado 1000 w/Premier	649

Expansion Cards/Cameras

Dos Cards		
Apple	Pentium 166mhz	$ 1049
Apple	Pentium 100mhz	B25
Apple	586 100mhz	649
Ethernet Cards		
Farallon	Ethermac PCI 109T w/RJ45 Cable	$ 82
Farallon	Ethermac PCI 109T w/BNC-T Cable	85
Processor Upgrade Card		
Newer Tech.	Max Powr 604/400 Mhz	$ 1718
Digital Cameras		
Casio	QV 300 640 X 480 4MB's	$ 649
Epson	Photo PC Mac Version	349
Epson	500 w/flash Mac Digital Camera	489
Kodak	DC 120 Digital Camera	899
Olympus	D200L Digital Camera	549
Sony	DSC-F1 w/Flash 4mb Color LCD	839

Hard Drives

DRIVE	INT.	EXT.
Quantum Fireball TM 1.2 GB	$ 209	$ 289
Quantum Fireball TM 2.1 GB	279	360
Quantum Fireball TM 3.2 GB	319	379
Quantum Stratus 2.1 G9	349	379
Quantum Stratus 3.2 G9	339	399
Quantum Stratus 8.4 GB	599	659
Seagate Barracuda 2.1 GB N	539	599
Seagate Barracuda 2.1 G9 W	559	659
IBM Ultrastar II 4.32 G9	559	619
Fujitsu Allegro 4.4 GB N	659	719
Fujitsu Allegro 4.4 GB W	725	920
Quantum Atlas II 4.5 G9 N	759	919
Quantum Atlas II 4.5 GB W	759	959
Seagate Barracuda 4.3 G9 N	765	915
Seagate Barracuda 4.3 G9 W	799	899
Quantum Atlas II 9.0 G9 N	1299	1359
Quantum Atlas II 9.0 G9 W	1299	1399
Seagate Barracuda 9.0 G9 N	1329	1389
Seagate Barracuda 9.0 G9 W	1399	1499
Seagate Elite 23.0 G9 N	2999	3099
Seagate Elite 23.0 GB W	2899	3199

Memory

Memory Sale!		
4MB	72 Pin Simm	$ 31
8MB	72 Pin Simm	46
18MB	72 Pin Simm	79
32MB	72 Pin Simm	159
8MB	Duo 1400 Simm	87
16MB	Duo 1400 Simm	127
24MB	Duo 1400 Simm	155
8MB	Powerbook 3400c	87
16MB	Powerbook 3400c	155
32MB	Powerbook 3400c	289
64MB	Powerbook 3400c	595
96MB	Powerbook 3400c	969
8MB	168 Pin Dimm 60NS 5Volts	52
16MB	168 Pin Dimm 60NS 5Volts	79
32MB	168 Pin Dimm 60NS 5Volts	159
84MB	188 Pin Dimm 60NS 5Volts	299
18MB	168 Pin Dimm 80NS 3Volts	130
32MB	188 Pin Dimm 60NS 3Volts	210
84MB	168 Pin Dimm 60NS 3Volts	365
VRam		
1MB	7200,7500,7600,B500 Series	$ 39
2MB	ATI VRam Card-9500 Series	114
Motorola VRam		
4MB	VRam Dimm	$ 125

Scanners

Epson Expression 636 Artist
$889.00

AGFA	Arcus II Bundle	$ 1559
AGFA	StudioStar FV Photoshop	929
AGFA	StudioStar LE Photoshop	759
AGFA	SnapScan 300 LE Omnipage	289
Epson	Action Scanner II	335
Epson	Express. 636 Artist	889
Epson	Express. 636 Executive	679
Epson	Express. 636 Profess.	1229
H.P.	5P Mac 600 dpi LE Photo	449
Microtek	Scanmaker E3	199
Microtek	Scanmaker E8 Pro	525
Microtek	Scanmaker III w/Photo	1369
Umax	Astra 600S 300 dpi	259
Umax	Astra 1200S 600 dpi	449
Umax	Powerlook II & Trans	1349

We Issue Credit on CPU Trade-ins!

3 Year Extended Warranty Available!

Lease Special

BankVest Capital Corp

9600/233 MHz
- 32MB RAM
- 4GB HD, 12X CD
- Apple 1710 Monitor
- Keyboard

36 Month Lease:

$139.00

PowerPC

Leasing Specialists

- Fast Approval
- Lowest Rates • No Advance Payments
- Tax Deductible
- Business & Personal Leasing Available
- Ask For The Leasing Department

2785 Pacific Coast Highway #178 Torrance, CA • 90505 Phone: 310-533-0496 Fax: 310-533-0501
Business Hours: Monday-Friday 7:00 AM to 7:00 PM PST Saturday 10:00 AM to 2:00 PM PST

Due to publication time, the advertising prices may vary. All prices includes cash discounts. Not responsible for typographical errors. Shipping and service fees are non-refundable. No sales tax outside of CA. All returns subject to 15% restocking charge. All returns must have an authorization number (R.M.A.) Graphics shown do not necessarily represent actual product.

CIRCLE 472 ON READER SERVICE CARD

CALL THE MAC EXPERTS!

Providing complete Macintosh solutions for graphics, pre-press, and video professionals

MacUser Labs Says:

"Four Mice! A PowerMax Power Play" *and* "Not only do the PowerMax monitors display good-looking images, but (they) are affordably priced!" *and* "Nice price, nice image quality, nice controls – nice monitor!"

PowerMax Trinitron™ monitors are designed specifically for the rigorous demands of the Macintosh. They ship complete with Mac-ready cables and adapters, a three year warranty, and our satisfaction guarantee: if the monitor is not just right, we'll replace it for you!

PowerMax Trinitron™ Monitors

Model PM15T 25 mm dot pitch- up to 1280x1024	$409
Model PM17T 25 mm dot pitch- up to 1280x1024	$699
Model PM17TE+ 25 mm dot pitch- up to 1600x1280	$849
Model PM20T 30 mm dot pitch- up to 1600x1280	$1449
Model PM21T- New! 21" Diamondtron!	$1647
Model PM20T+ W/ 25 mm dot pitch!	$1699

We're Wacom Experts!

ArtPad II 4x5 w/erasing Ultra Pen	$139
ArtPad II 4x5 w/erasing Ultra Pen w/Dabbler	$159
ArtZ II 6x8 w/erasing Ultra Pen	$309
ArtZ II 6x8 w/erasing Ultra Pen & Painter 4	$579
ArtZ II 12x12 w/erasing Ultra Pen	$439
ArtZ II 12x12 w/erasing Ultra Pen & Painter 4	$689
ArtZ II 12x18 w/erasing Ultra Pen	$699

We carry all Wacom Accessories, Pens and Tablets! You won't find anyone who knows more about Wacom!

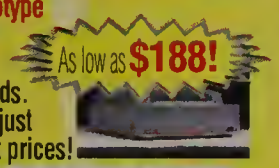
56K Modems on sale!

Global Village 56K Flex or X2	$198
US Robotics Sportster 56K	$198
SupraExpress 56E Mac	$159

Super Printers at Super Prices!

Apple StyleWriter 1200- special ref. package!	$119
New Apple Color StyleWriter 1500	$189
Apple Color StyleWriter 2500- special ref. package!	$229
Apple Color StyleWriter 2500	$269

Need a scanner? We stock: Agfa •Apple •Epson •Hewlett Packard •Microtek •Nikon •Linotype Hell •Polaroid •Umax Call one of our PowerMax scanner experts about your specific needs. We can recommend one that's just right for you at guaranteed best prices!



POWER MAX

Knowledge is Power

Save hundreds of dollars on these specially priced and configured 200 MHz systems! Or simply call one of our experts for your own custom configuration, usually with same day delivery!

Apple 200 MHz System

PowerMac 8600/200 with **64** Mb Ram, 2 gig drive, 12x CD-rom, int. Zip drive, ext. keyboard, 17" PowerMax Trinitron monitor, commercial surge protector, 10 Pack of Zip disks, Canvas 3.5. Only **$3788**, or just **$144 per month!**

AND THERE'S SO MANY MORE!

PowerTools 200 MHz System

PowerTools 604E 200Mhz with **64** Mb Ram, 2 Gb SCSI drive, internal SCSI CD-rom, internal Zip drive, ext. keyboard, 17" PowerMax Trinitron monitor, commercial surge protector, 10 Pack of Zip disks, Canvas 3.5. Only **$3449**, or just **$132 per month!**

PowerCenter Pro 210 MHz System

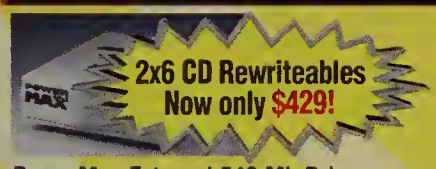
PowerCenter Pro 210 Tower with **64** Mb Ram, 2 gig drive, internal 8x CD-rom, internal Zip drive, ext. keyboard, 17" PowerMax Trinitron monitor, commercial surge protector, 10 Pack of Zip disks, Canvas 3.5. Only **$3749**, or just **$144 per month!**

SuperMac 200 MHz System

SuperMac S900 200 MHz with **64** Mb Ram, 2 gig drive, internal 8x CD-rom, internal Zip drive, ext. keyboard, 17" PowerMax Trinitron monitor, 4 Mb video card, commercial surge protector, 10 Pack of Zip disks, Canvas 3.5. Only **$3999**, or just **$154 per month!**

Receive Canvas 3.5 FREE with every CPU- a $300 value!
PLUS- upgrade to Canvas 5 for only $129!

PowerMax External Hard Drives



Arrays are our speciality!
•Atto •Micronet
•FWB •Optima

PowerMax External 540 Mb Drive	$219
PowerMax External 1.0 Gig Drive	$269
PowerMax External 1.2 Gig Drive	$299
PowerMax External 2.0 Gig Drive	$389
PowerMax External 4.0 Gig Drive	$549

Call for the absolute lowest prices *and* immediate delivery on the following products:

Displays: Apple, CTX, Hitachi, InFocus, LaCie, Mag, Magnavox, Mitsubishi, NEC, PowerMax, Radius, Samsung, Sony, ViewSonic
RAM: We stock lifetime-warranted RAM for every model of Mac made!
Software: Adobe, Acius, Claris, Deneba, LucasArts, MacroMedia, Microsoft, Mindscape, Netscape, Now, Quark, Specular, Symantec and dozens more!
Scanners: Agfa, Apple, Epson, Hewlett Packard, LaCie, Linotype, Microtek, Nikon, Polaroid, Umax, Visioneer
Printers: Apple, Canon, DataProducts, Epson, Fargo, GCC, Hewlett Packard, Kodak, Lexmark, NewGen, QMS, Tektronix, Xante
Storage: Atto, Iomega, Kodak, LaCie, Micronet, NEC, Olympus, Optima, PowerMax, Quantum, Seagate, StreamLogic, Sony, Syquest
Modems: Boca, Dayna, Global Village, Hayes, Motorola, US Robotics
Video: ATI, Focus, IMS, Media 100, Miro, Number 9, Radius, TrueVision

Why Buy From PowerMax?

- Most orders ship within 24 hours- even customized systems!
- We speak plain English- no technotalk or high pressure sales tactics!
- We offer flexible terms, and are experts on easy leasing!
- Aggressive purchasing and high volume means super low pricing!
- We consult with you, we want to make sure what you buy is what you need. And y'know what, we're really nice people. Try us and see!

Too many choices? Only PowerMax will give you the straight scoop on the pros and cons of each model and manufacturer!

No one stocks more and knows more about Apple New, Apple Vintage, Apple Refurbished & all Compatibles!

Ask about our complete Apple PowerPC systems with monitor for under	$999!
Performa 6360 160 16/1.2/8x CD	$999
Performa 4400/200 16/1.2 Gig/8x CD	$1399
Performa 4400/200 32/2.0 Gig/8x CD/Modem	$1699
PowerMac 6500/225 32/3000/12X/Zip/Mod	$1899
PowerMac 6500/250 32/4000/12X/Zip/Mod	$2188
PowerMac 6500/250 32/3000/12X/Multim.	$2269
PowerMac 6500/250 48/4000/12X/Zip/Mod	$2469
PowerMac 6500/275 32/4000/12X/Zip	$2799
PowerMac 6500/300 64/4000/12X/Modem	$2899
Customizable Macs- We configure any way you want!	
PowerMac 7300/180 16 Ram/12x CD	$1699
PowerMac 7300/200 16 Ram/12x CD	$1999
PowerMac 8600/200 32 Ram/12x CD/Zip/KB	$2599
PowerMac 9600/233 32 Ram/12x CD	$2999
PowerMac 9600/200MP 32/12x CD	$3599

Apple Powerbooks

We stock all 1400's ,2400's, 3400's, and Duos at the absolute lowest "cost-plus" prices possible. Call us!

Umax SuperMac Compatibles

SuperMac C500/180 LT 16/1.2/CD/28.8 Mod	$919
SuperMac C500/180 16/1.2/CD/28.8 Mod	$1069
SuperMac C600/180 16/1.2/CD/33.6 Mod	$1169
SuperMac C600/200 16/2 Gig/CD/33.6 Mod	$1449
SuperMac C600/240 16/2 Gig/CD/33.6 Mod	$1549
Customizable Supermacs- Configure any way you want!	
SuperMac S900/180 16/CD/Vid/KB	$2253
SuperMac S900/200 32/CD/Vid/KB	$2549
SuperMac S900/233 32/CD/Vid/KB	$3199
SuperMac S900/200 Dual Proc. 32/CD/Vid/KB	$3495
SuperMac S900/250 32/CD/Vid/KB	$4299
SuperMac S900/250 Dual Proc. 32/CD/Vid/KB	$5999

We also stock all models of StarMax, PowerTools and PowerComputing at super low prices!

800-613-2072

Local line: (503) 624-1827 • Fax (503) 624-1635
http://www.powermax.com • E-Mail: powermax@europa.com

Prices subject to change without notice. Prices reflect cash discount.
Credit card orders strictly verified for fraudulent use. Some products are subject to final sale.

We accept educational and corporate purchase orders, and are experts in financing for virtually any size business!

CIRCLE 446 ON READER SERVICE CARD

MWAd# 0997CM

Sales (818)780-9457

Same Day Shipping

DHL Worldwide Express · FedEx Federal Express

Macworld EXPO

CompuMall®

Your Premier Computer Source

800-977-5665

www.cmpumall.com

Fax (818)787-2111

VISA · MasterCard

Prices Are Based on C.O.D. Order & Subject to Prior Sales & Change!
* Factory refurbished with Warranty

E-Mail:csales@pacificnet.net

Call Us for Macworld Show Specials

PowerMacs

8600/200	32-2GB, 12xCD, Zip	$2745
9600/200MP	32-4GB, 12xCD	$3795
9600/233	32-4GB, 12xCD	$3099
9500/200	32-2GB, CD	$2295
9500/180MP	32-2GB, CD	$2685
7600/132	16-1.2, CD	$1325
7600/120	16-1.2, CD	$1075
7300/200	32-2GB, 12xCD, Kb.	$2125
7300/180	16-2GB, 12xCD, Kb.	$1775
6500/250	32-4GB, 12xCD, Zip,33.6	$2095
6500/225	32-3GB, 12xCD, 33.6,Kb.	$1795
4400/200	32-2GB, 12xCD, 33.6, Office	$1695
4400/200	16-1.2GB, 8xCD, Kb.	$1195

Apple®

PowerBooks

1400c/133 MHz	16/1.1GB, 6xCD	$2465
1400cs/117 MHz	12/750MB, 8xCD	$1625
Duo2300C/100 *	20/1.1GB, Fax/Modem	$1395

Performa

6400/200	16/2.4GB, 8xCD, 28.8	$995*
6400/180	16/1.6GB, 8xCD, 28.8	$109
6400/180	16/1.6GB, 8xCD, 28.8	$825
6300/100	8/1GB, CD	$685
6360/160	16/1.2GB, CD , KB., Modem	$89
6200/75	8/800, CD, Kb.	$59
6200/75	8/500, CD	$59
5260	8/800 CD , SVGA Mntr., Kb.	$99
5400/180	16/1.6GB, 8xCD, KB, 15" Display	$1185
5400/180	16/1.6GB, 8xCD, KB, 33.6, 15" Display, CD Bundle	$1345

3400c/240	16-3GB, 12xCD, 33.6	$5125
3400c/180	16-1.3GB, 12xCD, 33.6	$3695
1400c/133	32-2.1GB, 6xCD	$2995
1400c/117	16-1GB, 6xCD	$2395
1400cs/117	16-750, 6xCD	$1650
1400cs/117	20-750, 8xCD	$1765
DUO 280	4-240	$695
DUO 2300C	40-2.1GB	$1595
DUO 2300C	8-750	$995

Displays

14" */15" *		$249*/289*
15"AV		$375
1705/1710		$575/775
1710AV		$825
20 20" Trinitron		$1419

radius

PrecisionView 21"	0.25dpi	$1395
PressView 17SR		$1959
Refurbish Displays Available		CALL

NEC Best Buy 17XV 17" .28dpi $599

SONY

15SXI	15" 0.25 dpi	$349
200SF	17" 0.25 dpi	$729
17SFII	17" 0.25 dpi	$665
20SFII	20" 0.25 dpi	$1525

ViewSonic 0.27dpi W/Sound

15GA	15"	$419
17GA	17"	$679
800G	20"	$1165

WACOM

ArtPad II 4x5	$115
ArtZ II 6x8	$249
ArtZ II 12x12	$369
ArtZ II 12x12*	$299
ArtZ II 12x18*	$395

Video Cards

iXMICRO

Turbo TV	$121
Twin Turbo 128M4	$225
Twin Turbo 128M8	$459

Printers & Scanners

Clr. LaserWriter 12/600 PS		$4495
LaserWriter 12/640		$1389
LaserWriter 4/600*		$499*
StyleWriter 2500*		$199*
StyleWriter 2500/2200		$249
DeskJet 870CXi /855CXi		$315
DeskJet 1600CM/1600CM*		$1295
LaserJet 4MV/4MV*		$1949
LaserJet 5MP/6MP		$795
ScanJet 5/5P/4C		CALL/New Low Price

HEWLETT PACKARD

LaserJet 5M 12ppm,6MB, 600DPI, PSL2, $1395

220v Printers Available

UMAX AGFA Scanners In Stock Call for Best Price

SOFTWARE Super Deals

Photoshop 4.0	$349
Illustrator 7.0	$239
PageMaker 6.5	$299
QuarkXpress 3.32/4.0	$639/CALL
Freehand 7.0	$239
Insignia SoftWindows	$99
MS Office 4.2.1	$275

Fax/Modem

Global Village	Teleport 33.6	$79
US Robotics	Ext. 56K	$189

Mac Clone

Systems in stock. Best prices!

PowerComputing Most Power to You

Tower/200 Minitower $2195
Center/150 Minitower $1785

MacOS

MOTOROLA

3000/200* Desktop $895
3000/160* Minitower $895

UMAX 604e/200 $2195

604e Processor 200MHz, 16MB RAM, 2GB HD, 8xCD-ROM, IMS Twin Turbo w/4MB VRAM

www.cmpumall.com

STORAGE

LACIE LIMITED

CD Recordable w/Toast Software

2x6 CD-R	$395
4x6 CD-R	$749

Iomega

Zip	SCSI / 10 pack Crtrdg.	$139/109
Jaz	SCSI /3 pack Crtrdg.	$379/255

TOSHIBA	2.1GB IDE 2.5" f/PB.	$359
TOSHIBA	3.08GB IDE 2.5" f/PB.	$569
Quantum	Tempest 2GB SCSI-II	$249
Quantum	Atlas 4.3GB SCSI-II	$459

CIRCLE 541 ON READER SERVICE CARD

LA COMPUTER CENTER

12002 PICO BLVD. LOS ANGELES, CA 90064

CALL (800) 689-3933

UNIVERSITY, SCHOOLS, GOV'T & FORTUNE 1000 P.O.'S ACCEPTED!

Call for Quantity Pricing!

INTERNATIONAL ORDERS WELCOME CALL

FAX (310) 312-9041 PH. (310) 479-0999

E-Mail us or place your orders on-line at: lacc@lacc.com

OPEN FROM 8:30 - 6:00 P.M. (PACIFIC STANDARD TIME) SUNDAY'S CLOSED

powermacs

9500/200* 32/2G/CD	$2399
9500/180MP 32/2G/8x	$CALL
9600/233 32/0/12x/0 video/KB	$2199
7600/132* 16/1.2G/8x	$1399
7200/120* 16/1.2/8x/256k	$ 999
7200/120* 16/1.2/8x/256k/DOS	$1599
6500/250 32/4G/12x/zip Dr.	$1999
6500/250 48/4G/12x/zip/MS Off.	$2199
6500/225 32/3G/12x/Office	$1699
6500/275 32/4G/12x/AVID Cinema	$2499
6500/300 64/4G/12x/Zip	$2599
6100/66* 8/1.2/CD/DOS	$ 999
4400/200 32/12x/256k/MS Office	$1499
4400/200 16/12x/kebrd.	$1295

Work Group Servers

9650/233 64/4G/12x/Apple Share	$5999
9650/233 48/4G/12x/Internet Ready	$4999
9650/233 48/4G/12x/2GB Dat Dr.	$5499
8550/200 32/2G/CD/Apple Shr	$4199
8550/200 32/2G/CD/Api Shr/Dat	$4999
7350/180 48/4G/12x/Apple Share	$3099
7350/180 48/4G/12x/Internet Ready	$2899
7350/180 48/4G/12x	$2449
7250/120 16/1.2G/CD/Netwrk	$1299

MOTOROLA

Starmax 3000/200-6 16/1.2G/8x/256K	$1350
Starmax 3000/200-6S 32/2.5G/8x/512K	$1700
Starmax 4000/200-6 32/2.5G/8x/512K	$2310
Starmax 4000/200-6E 32/4.3G/16x/512K	$2529
Starmax 5000/300 32/4.3G/16x/512K/Enet	$2359
Starmax 5000/300-G 32/4.3G/16x/512K	$2959

Radius/IMS Video

Thunder TX1152	$1399
Thunder 3D	$2449
Thunder Power 30/1920	$1149
Thunder 30/1600	$ 649
TwinTurbo 128M2P 2M8 Card	$ 129
TwinTurbo 128M4P 4M8 Card	$ 269
TwinTurbo 128M 4M8 VRAM	$ 329
TwinTurbo 128M 8M8 VRAM	$ 499

FedEx Federal Express

NEXT DAY AND SAME DAY SHIPPING AVAILABLE, WE SHIP WORLDWIDE!

performas

6400/200VE 16/2.4/8x/28.8/256K	$1699
6400/200 16/2.4/8x/28.8/256K	$1299
6400/180 16/2.4/8x/28.8/256K	$1099
6360CD 16/1.2/8x/28.8/No Mon.	$ 949
6320CD* 16/1.2/CD/28.8/No Mon.	$ 799
6300CD* 16/1.0/CD/Mod/No Mon.	$ 729
6200CD* 8/1.0/CD/No Monitor	$ 649
5400/180* 16/1.6/CD	$1099
5320CD 8/1.2/CD/Kebord./15" Mon.	$1199
5200CD * 16/1.2/CD/Kebord./15"	$CALL
640CD* 12/500/2x/DOS/No Mon.	$ 699

Accessories

Iomega Zip 100MB w/1 Cart.	$ 139
Iomega Jaz 1Gig w/1Cartidge	$ 359
Iomega Zip Cartidges 10pk	$ 139
Iomega Jaz 1 Cartidge	$ 89
6100 Dos Card	$ 99
PCI P100MHz Dos Card w/8M	$ 699
Apple 604e/200 upgrade Card	$ 799

Internal 3.5 HDD's

IBM Capricorn Ultra SCSI 4G	$ 449
Quantum Fireball 1.08G	$ 215
Quantum Fireball Tempst 2.1G	$ 249
Quantum Atlas II 4.5G AV	$ 799
Quantum Atlas II 9.1G AV	$1099
Seagate Barracuda II 2.4G AV	$ 549
Seagate Barracuda II 4.3G AV	$ 799
Seagate Barracuda II 9.0G AV	$1249
Seagate Cheetah 4.3GB 10000RPM	$ 899
Seagate Elite 23GB	$ 2799

Monitors

Apple 15" MultiScan	$299*/$399
Apple 15" AV MultiScan	$439
1705 17" MultiScan	$629
1710/1710AV MultiScan	$699/799
20" MultiScan	$1499/1199*
Sony 100SF/100SX 15"	$429/379
Sony 200SF/200SX 17"	$759/649
Sony 300SF 20"	$1579
Radius Pressview SR 21"	$2899
Radius Pressview SR 17"	$1649
Radius Precisionview 21"	$1999

Rasterops Hitachi

Mc 600 17" .28dp 1280x1024 3-Year	$ 599
Mc 611 17" .22dp 1600x1200 3-Year	$ 699
Mc 7515 19" .22dp 1600x1200 3-Yr	$ 1049
Mc 20 20" .28dp 1600x1200 3-Year	$1169
Mc 801 21" .22dp 1600x1200 3-Year	$1499
Mc801HR 21" .22dp 1600x1280 3-Yr	$1749

NEC Monitors

Multisync C400 14"	$ 299
Multisync 15V/17XV	$449/699
Multisync M700 17" 25mm	$ 749
Multisync E1100 21" 28mm	$1529
Multisync P750 17" 25mm	$ 869
Multisync C500 15" 28mm	$ 349
Multisync M500 15" 25mm	$ 389
Multisync XM29 29" 25mm	$2399
Multisync XV17+ 17" 28mm	$ 649

powerbooks

POWERBOOK SPECIALS

FREE MEMORY UPGRADES INSTALLATIONS

3400C/240 16/3G/CD	$4799
3400C/200 16/2G/CD	$3899
3400C/180 16/1.3/CD	$3499
3400C/180 16/1.3	$2999
1400C/133 16/1G/CD	$2499
1400CS/117 12/750	$1399
1400CS/117 16/750/CD	$1199
5300CE* 32/1G	$1999
5300C* 16/1G	$1499
5300C* 8/500	$ Call
5300CS* 16/750	$1299
5300CS* 8/500	$1199
DUO 2300C* 8/750/Carring Case	$ 899
DUO 2300C* 20/1G/Carring Case	$1199
DUO250* 12/200/MODEM	$ 699
DUO280* 12/240/MODEM	$ 899

Powerbook HDD's

Toshiba 810mb SCSI 2.5"	$ 449
Toshiba 2.1G IDE 2.5"	$ 349
Toshiba 3G IDE 2.5"	$ 599

Printers

HP DeskJet 870Cxi	$ 399
HP LaserJet 6MP	$ 799
HP LaserJet 5M	$1499
HP LaserJet 4MV	$2299
HP 5Mcolor	$6699
HP 5MP	$ 599
Laser Writer 4/600*	$ 649
LaserWriter select 360*	$ 999
LaserWriter 16/600/PS*	$1499
LaserWriter 12/660/Color	$4999
StyleWriter 1200	$169/129*
StyleWriter 1500*	$ 149
StyleWriter 2500	$ 229
Portable StyleWriter 2200	$ 329

Scanners

AgfaArcus II	$1529
AgfaStudioStar w/Photo	$ 999
AgfaStudioScan IIsi w/LE Photo	$ 649
AgfaSnapScan w/LE Photo	$ 299
Umax Astra 300P	$ 199
Umax Astra 600P	$ 225
Umax Astra 600S w/Deluxe	$ 279
Umax Astra 1200 w/Photo Dlx.	$ 479
Umax Astra 1200 w/Full Photoshop	$ 699
Umax Powerlook II w/Full Photshp	$1299
Umax Powerlook 2000	$3799
Umax Mirage w/Trans Adapter	$4099
Umax Mirage II w/Trans Adapter	$6999

Software

Adobe Illustrator 7.0	$299
Adobe Photoshop 4.0	$399
Adobe Pagemaker 6.5	$399
Adobe After Effects Full/studio	$Call
Macromedia Freehand	$299
Macromedia Full/studio	$Call
Microsoft Office 4.2.1	$349
Microsoft Word/Excel	$199/199

PowerComputing

PowerTower Pro 225*
225MHz 604e RISC Processor 16/2G/8xCD/8MBVRAM
$2299

PowerCenter 180*
180MHz 604e RISC Processor 16/2G/8xCD
$1499

PowerTower Pro 210*
210MHz 604e RISC Processor 32/2G/16xCD/1Mb Cache
$2099

Power Center 166 MT*
166MHz 604 RISC Processor 16/2G/8xCD
$1299

Power Base 180 LP*
180MHz 603e RISC Processor 16/2G/8xCD
$849

One year On site Warranty Available for 99.00

UMAX

Computer Corporation
Ultimate Expandability

S900/250DP 64MB/4GB/8MBVRAM/8xCD/KB/ZIP	$6099
S900/200DP 32MB/2GB/4MBVRAM/8xCD/KB	$3499
S900/180DP 32MB/2.1GB/8xCD/KEYBOARD	$2849
S900/250 32MB/2.1GB/8MBVRAM/8xCD/KB/ZIP	$4199
S900/233 32MB/2.1GB/8MBVRAM/8xCD/KB	$3349
S900/200 32MB/2GB/4MBVRAM/8xCD/KB	$2649
S900/180 32MB/2GB/4MBVRAM/8xCD/KB	$2499
J700/180 24MB/2.1GB/2MBVRAM/8xCD/KB/MOD	$1799
C600/240 24MB/2GB/8xCD/KB/28.8	$1499
C600/200 16MB/2GB/8xCD/KB/MODEM	$1339
C600/180 16MB/1.2GB/8xCD/28.8	$1079
C500/180 16MB/1.2GB/8xCD	$1079
C500/160 16MB/1.2GB/8xCD	$1049

Call us for the lowest prices on everything we stock! Our sales Reps. are more than happy to help you. We also carry Toshiba, Compaq, IBM, Texas Instruments, Fujitsu, Hitachi, Etc.. Call us for products not listed.

Trade in your Powerbooks for a Newer Model.

GE 4 YEAR ON SITE WARRANTY!

$100 to $350	$351to $700	$701 to $1200	$1201 to $2000	$2001 to $3000	$4001 to $6000
$49.95	$79.95	$139.95	$169.95	$199.95	$259.95

Visit Us At Our Web Site http://www.LACC.com

24Hrs A Day -- On-Line Catalog & Ordering

E-Mail us at: lacc@lacc.com

* Reflects Refurbished Units. Prices Subject To Change Without Notice. CALL FOR LATEST PRICE. ALL PRICES REFLECT A 3% CASH DISCOUNT. Credit Cards Will Be Verified For Fraudulent Use.

CIRCLE 497 ON READER SERVICE CARD

MONITORS

$285*

Trinitron™ Super Sale

BUY ANY CPU... Add a 17" monitor for 200.00

17" Hi-Res. Trinitron Mtr (R)	325.00
17" Std.-Res. Trinitron Mtr (R)	285.00
17" MAG 17T MultiScan Mtr (D)	549.00
Apple 15" MultiScan Mtr (U)	229.00
Apple 14" MultiScan Mtr (U)	179.00
Apple 14" RGB Trinitron Mtr (U)	199.00
Apple 13" RGB Trinitron Mtr (U)	169.00
Radius 8/1600PCI video card (N)	199.00
Most Apple cables IN STOCK	CALL

PRINTERS

40MB 3.5" TH, SCSI (N)	29.00
160MB 3.5" HH, SCSI (N)	69.00
External Hard Drive Enclosure (N)	49.00
External CD-ROM Enclosure (N)	39.00
Apple 300i 2x CD-ROM (N)	59.00
Apple 600i 4x CD-ROM (N)	109.00
12x CD-ROM, SCSI *Int/Ext* (N)	119/159
Apple 1.44 Floppy *Pull/New*	79/99
ImageWriter II/LQ (U)	79/99
LaserWriter IInt/IIntx (U)	299/399
LaserWriter IIf/IIg (U)	499/599
LW II Toner Cart. (R)	26.00
StyleWriter 1200 (R)	119.00
Epson Color 600 (N)	299.00

COMPUTERS

P631 4/0/CD (U)

$399.00

monitor not included

P631 8/850/CD/M(U)	599.00
Mac SE 4/120 w/keyboard (U)	149.00
Mac SE/30 4/160 w/keyboard (U)	399.00
Mac LC 4/40 ,13" mtr & key(U)	249.00
Mac IIcx 4/160 ,13" mtr & key(U)	299.00
Mac IIsi 5/160 ,13" mtr & key(U)	299.00
Mac IIci 4/160 ,13" mtr & key(U)	399.00
PB Duo 250/280 (U)	399/499
PB Duo 2300c 8/750MB (R)	1099.00
PB Duo 2300c 36/1.IGB (R)	1599.00

KEYBOARDS

Radius/CLEAR ADB Mouse (N)	16.50/25
Radius Ext. ADB Keyboard (N)	45.00
Apple Ext. I. ADB Ext. Key (U)	35.00
Replacement Mouse Ball (N) 5pk	45.00
AA1/2 Lithium Batt. (N) 10pk	80.00
Apple TV Tuner Kit w/Remote (N)	99.00
Apple 14.4 internal modem (N)	25.00

Ext. 28.8bps modem NEW $49.00

ALL prices include 3% cash discount

CABLES

MacOS

MacAlly • UMAX
PowerComputing
Motorola • Apple

BUY/SELL/LEASE

We accept...
School & Gov't POs
V/MC/AMEX/DISC

www.poweron-line.com Rocklin, CA (916) 652-1880 • (916) 652-1881 *fax* 800-673-6227 POWER ON COMPUTER SERVICES

WE GUARANTEE THE BEST PRICES!

MediaGuide

Prices Listed Reflect a 3% Cash Discount

BUY/SELL/TRADE

Mac Plus 1/0.....$59	SE 4/40.....$79	Powerbook 520 12/160/19.2.....$999
SE/30 4/40.....$249	Classic 4/40...$179	Powerbook 540c 12/320/19.2.....$1399
Mac II 4/40/Video...$69	LC 4/40.....$129	PB 5300cs / 5300c / 5300ce.....CALL!
IIcx 8/40/Video.....$139	IIsi 5/40.....$139	Apple 12" Mono....$89 Apple 12" RGB...$119
IIci 8/80.....$189	IIvx 8/210.....$279	Apple 13" RGB....$179 Apple 14".....$199
Ask about our bundle specials		NEC 15" 3FGe....$299 Apple 16" RGB...$399
for IIsi, IIcx, or IIci's...from only $299!		Apple 17" MS.....$599 Apple 20" MS...$999
Mac IIfx 8/210.....$299	P475 8/160.....$449	Imagewriter II.....$99 Laserwriter.....$149
Q605 8/160.....$459	Q610 8/230.....$479	Laserwriter IInt...$299 LW IIntx.....$399
Q630 8/250.....$599	C650 8/230.....$549	External hard drive case w/cable.....$39
Q650 8/230.....$599	Q700 4/230.....$499	500MB 2.5" SCSI Powerbook HD.....$389
Q800 8/230.....$649	Q900 8/250.....$699	Seagate 2 gig int. hard drive (8.5ms).....$349
Quadra 950 8/500.....$799		8-bit NuBus video card...$39 24-bit...$99
Quadra 840AV 16/230/CD.....$799		Ethernet cards..$39 IIsi NuBus adapt..$39
6100/60 8/230/CD.....$599		2x CD-ROM internal.....$29 / 2x external.....$69
7100/66AV 8/230/CD.....$799		800K floppy.....$25 1.44 floppy from $79
7200/90 8/500/CD.....$899		Apple Extended Keyboard.....$29
Huge selection of Power Macs....LOWEST!!		120Mhz 604 upgrade daughtercard.....$39
PB 140 4/40.....$399	PB 170 4/80...$449	256K Level-2 cache for 6100 & 7100.....$15
Powerbook 165 12/160/14.4.....$649		*Logic boards & Power supplies — CALL!*
Duo 230 12/120/14.4.....$499		*Parts, Accessories, other CPUs — CALL!*
Duo 270c 12/120/14.4.....$799		MS Word 5.0...$39 Quicken Deluxe 6.0...$19
Duo 280c 12/120/14.4.....$899		MS Excel 4.0....$49 Other software.....Call!
Apple Duo Dock I (w/lid upgrade).....$299		30- and 72-pin SIMMs: BEST PRICES!

Call toll free: (800) 463-0686

Fax: (303) 788-0651 • Local & Int'l: (303) 788-1400
Hours: M-F 9-6, SAT 12-6 MST • 3294 S. Acoma St. #2B, Englewood CO 80110
E-mail: Sales@MediaGuide.com • http://www.mediaguide.com

CIRCLE 418 ON READER SERVICE CARD

HAWKE BUSINESS SYSTEMS
A Division of the CPS Services Group
Flemington, NJ 08822

(800) 875-2610
Fax - (908) 782-7027
Email - MacHawke@AOL.COM

We Buy, Sell, Trade & Repair Mac Equipment

6 Month Parts & Labor Warranty

Classic 4/40 w/Kyb & Mouse with HP Deskwriter Printer & Software - $349.00
Classic II 4/80 w/Kyb & Mouse with Stylewriter II & Software - $449.00
Se/30 8/80 w/Kyb & Mouse with HP Deskwriter Printer & Software - $449.00
Color Classic 10/80w/Kyb & Mouse with Stylewriter II & Software - $599.00

Our Lowest Prices of the Year on the Following Packages
Please Call for Latest Price Quotes - Custom Configurations Available on all Systems

Mac IISi 5/80 w/ Ext Kyb, Mouse and Apple Hi-Res Color Monitor	Call
Mac IICi 8/160, w/ Ext Kyb, Mouse and Apple Hi-Res Color Monitor	Call
Mac LC III 8/80 w/ Ext Kyb, Mouse and Apple Hi-Res Color Monitor	Call
PM 6100/AV 8/500/cd w/ Ext Kyb, Mouse and Apple 15" MultisyncColor Mon	Call
PM 6205/75 16/1.2/cd w/ Ext Kyb, Mouse and Apple 15" MultisyncColor Mon	Call
PM 7200/75 16/750/cd w/ Ext Kyb, Mouse and Apple 15" MultisyncColor Mon	Call
PM 7200/120 16/1.2/cd w/ Ext Kyb, Mouse and Apple 15" MultisyncColor Mon	Call

Refurbished HP DeskWriter (Plus & Se Compatible) $99.00
Refurbished Apple StyleWriter II Ink Jet Printers W/ cable $119.00

ImageWriter II - $139.00 Personal LaserWriter NT $349.00
LaserWriter IINT $325.00 Personal LaserWriter NTR $425.00

Refb Hi Res Color Display $219.00 Refb 15" MultisyncColor Monitor $295.00
Refb Portrait FPD Monitors $199.00 Radius Pivot Color Dispaly - $349.00

PowerBooks
PowerBook 180 8/120 w/Video Adpt - Call PB 5300Ce 32/1.2 w/video Card - Call
Duo 230 8/120 with Full Duo Dock, Kyb & Mouse - Call

800K Internal Floppy -	$35.00	Plus, Se and Classic CRT & Yoke	$39.00
1.4 Meg Internal Floppy (w/t)	$89.00	Mac IISi Nubus Adapter w/ FPU -	$49.00
Mac Plus & ADB Mice -	$39.00	Mac Irma Boards - Nubus -	$55.00
Plus & Se Analog Boards -	$49.00	EtherNet Nubus Boards 10 Base T -	$39.00

Wide Selection of Other Repair Parts and Accessories for Mature Mac Computer

CIRCLE 457 ON READER SERVICE CARD

voice: 510-689-9488 fax: 510-689-9487 PRICES & QUANTITIES SUBJECT TO CHANGE Place Your Orders OnLine!

1-888-447-3728 • MacResQ • www.macresq.com

Toll Free

Complete Color Systems ! Mac IIcx 5/80 or Mac IIsi 5/80 w/ Apple 13" RGB Display & kybd
$299

MacOS

PARTS,PARTS,PARTS!!

CD 600i+ (tray) NEW!	$99
Manual inject floppies (661-0121)**	$49
Auto inject floppies (661-0474)**	$79
132 mhz PM processor upgrade cards	$99
150 mhz PM processor upgrade cards	$199
80 MB 3.5" SCSI hard drives (internal)	$29

POWERMAC LOGIC BOARD EXCHANGE!
PM 6100, 7100, 7200 SERIES.....$299
8100 SERIES.....$399 7500/7600 SERIES.....$399
9500 SERIES.....$399
SAME MODEL, SAME MHZ ONLY! NO ADVANCED EXCH!

Only $599! PowerComputing 601/120 Mhz 8/500/4xCD

monitor sold seperately

includes:
- Extd. keyboard & mouse
- Quicken, Now Utilities, 250 Fonts, Grolier's Encycl.
- manuals

Complete BUNDLE w/ Apple 17" multi-scan only $999

POWER SUPPLIES:**

LC thru Q 605	$19
Mac II cx/ci/ Q 700	$49
Q 800 / PM 8100	$109
PM 8500 / 9500	$129
PERF. 630 THRU 6300	$69
Duo Dock	$69
Q 900 / 950	$129
PM 6100 (EXCH.ONLY)	$89
PM 7100 (EXCH. ONLY)	$69
II SI	$79

Apple StyleWriter II $99 (w/ Ink)

Apple StyleWriter 1200 $119

MQ Mac·Res·Q.

PowerBook Duo Keyboards! NEW! (rev. F) $39 w/exch.

New! $199 PowerMac AV Cards! (6100, 7100, 8100)

Apple 20" Multi-scan $999

Apple Pentium DOS cards, 100 mhz $699 !

ALL ITEMS REFURBISHED UNLESS NOTED AS NEW • All Parts Sold With a 90 Day MacResQ Exchange Warranty • ** = Exch. Required For Orders of 10 or Less • All Major Credit Cards With NO Surcharge •

CIRCLE 437 ON READER SERVICE CARD

Mac S·A·L·E INTERNATIONAL

Performa System Specials

Includes CPU, Apple Color Monitor, Kbd & Mouse

6116 8/700/CD - $749

6200 8/1G/CD - $749

Quadra 610 8/230/CD

68040 25MHz

Complete System Includes: Apple Color Monitor, Kbd & Mouse

Only $679

Desktop CPU's

Mac LC	4/40	$149
Mac IISI	5/80	$229
Centris 610	8/230/CD	$449
Centris 650	8/230/CD	$479
Quadra 610	8/230/CD	$479
Quadra 630	8/500/CD	$479
Quadra 650	8/500/CD	$529
Quadra 660AV	8/230/CD	$499
Quadra 700	8/350	$479
Quadra 800	8/350	$529
Quadra 840AV	8/350	$599
Mac Portable	1/40	$199
Perf. 600	5/80/CD	$399
Perf. 5200/75	8/800/CD	$799
Perf. 6116	8/700/CD	$549
Perf. 6200	8/1G/CD	$549
Perf. 6214	8/1G/CD	$549
Perf. 6290	8/1.2G/CD	$649

Desktop CPU's

6100/60	8/250/CD	$529
7100/66	8/500	$629
7200/75	8/500/CD	$799
7200/90	8/500/CD	$849
WGS 80	8/1G/CD	$729
WGS 80	8/500/CD/DAT	$829
WGS 95	16/500/DAT	$949
WGS 8150	8/IG/CD/DAT	$1349

Printers

New Personal LaserWriter NTR	$399
LaserWriter IIF	$399
LaserWriter Pro 630	$699
LaserWriter Pro 810	$1299

Accessories

Mac IISI NuBus Adapter	$39
Apple Ext. II Keyboard	$49
Apple OneScanner	$159
Apple HDI-20	$79
New 8•24 GC Video Card	$149

PowerBooks

PB 140	4/40	$349
PB 145	4/40	$399
PB 160	4/120	$499
PB 165C	4/80	$749
PB 170	4/80	$499
PB 520	12/160/Mdm	$779
Duo 210	4/80	$349
Duo 230	4/80	$399
Duo Dock		$229
Duo Dock II		$299

Monitors

Performa Plus Display	$229
Apple 13" RGB	$229
Apple 14" Color Display	$229
Apple 14" Color/wTouch Screen	$299
Apple 14" AV Display	$229
Apple 14" MultiScan	$249
Apple 15" MultiScan	$299
Apple 17" MultiScan	$499
Apple 1710 AV Display	$599

CLOSEOUT SPECIALS

•New Apple CD-600i•

4X Speed Tray Loading Int. CD-Rom Drive

Internal ONLY - $69

External Slimline - $99

• New Personal LaserWriter •

NTR Logic Board

With Trade-In, ONLY $59

Mac SE 4/40

►$99◄

Mac SE 30 4/40

►$199◄

(Keyboard/mouse additional)

Mac II 4/0-$49

Mac IIcx 4/80-$149

Mac IIx 4/80-$149

Mac IIfx 4/80-$179

(Monitor,keyboard/mouse additional)

Laser Select 300

►$279◄

Laser Select 310

►$329◄

Color StyleWriter 2200 or 2400 (Your Choice)

►$99◄

StyleWriter II

►$79◄

PowerComputing

►Power 120◄

PowerPC 601 at 120 MHz. 3 NuBus Expansion Slots, Level 2 cache, Built-in Video Support & Ethernet (Similar to Apple PowerMac 8100) Included: Ext. Keyboard, Mouse, Mouse Pad, Bundled Software (ClarisWorks; Intuit's Quicken; Now Software's Now Utilities, Now Contact, Now Up-to-Date, FWB's Hard Disk Toolkit & CD-ROM Toolkit, 250 Bitstream Type 1 and Tru Type Fonts; America Online)

8/540/4X CD

(Other config. available)

Desktop or Tower Model:

Only $599

Complete Bundle with 17" Monitor

Only $999

UY•SELL/NEW•USED•REFURB
roducts are Refurbished/Used
nless specified otherwise
mited Qty/Prices subject to change
ices represent a Discount off Full Price
turns at Mgmt discretion/15% Restocking fee

1-800-729-7031

1150 W. Alameda Dr, St #1&2, Tempe, AZ 85282

FAX 602-858-0811

Web: http://www.macsaleint.com

E-mail: info@macsaleint.com

Closeout Corner: Check our website for special pricing on one-of-a-kind, overstocked & discontinued products

CIRCLE 401 ON READER SERVICE CARD

MPEG CARDS for Performas

- Must have TV/Video System
- Fits Most Performas
- Get full motion video

NOW $49

WAS $249

Apple 13" & 14" Monitors

- 13" RGB - $179
- 14" Color RGB - $229
- Trinitron tubes
- Used
- 90-day warranty

FROM $179

Apple 17" Multiscan Display

- Trinitron
- Refurbished
- 90-day warranty
- *Only $399 with CPU purchase

$499

Atlantic Technology Speaker System

- M105/M110 System
- Subwoofer/Satellite
- Ranked by CNET
- *Add stands for $19

INCREDIBLE SOUND $99

MacWorks 800-482-2705

"Low Prices, Great Service...That's The Deal!"

Voice 913-599-6227 • Fax 913-599-6111

NEW		USED		PARTS & ACCESSORIES	
PowerMac 960D/2DD - 32/4GB/12xCD/key.	$3099	PowerMac 6100/60 - 8/160/CD	$499	Manual Inject floppy	$79
PowerMac 44DD/2DD - 16/2GB/8xCD/key.	$1499	Centris 650 - 8/230	$499	Auto Inject floppy	$99
PowerMac 730D/18D - 16/2GB/12xCD/key.	$2049	Quadra 650 - 8/230	$549	6100 DOS Card Full Kit	$149
WorkGroup Server BD - 16/1000/DAT	$1099	Performa 640 DOS - 12/500/CD	$599	Apple MPEG Card for 630/6200/6300/5200	$49
WorkGroup Server 6D - 8/230	$699	Quadra 610 - 12/230/CD/Ethernet	$499	PB 190 Video Out Card - 8-bit color	$79
Centris 66Dav - 8/80 NEW FACTORY SEALED!	$499	Mac IIsi - 5/80/Ethernet	$149	PB 190 Infrared Card Upgrade	$39
Network Server 5DD/132 - 32/2GB/CD/DAT/AIX	$3499	Mac IIcx - 4/80/Video/Ethernet	$129	Performa 630 ->640 Upgrade - DOS Capable	$149
PowerBook Duo 23DDc - 8/750	$999	Mac IIci - 4/80/Ethernet	$149	Seagate 2GB Hard Disk - ST32105N	$229
Newton 12D - 2MB, OS 2.0	$149	PowerBook Duo 25D - 12/200	$499	PB 190/5300 8MB RAM Module	$69
GV 33.6 SpeakerPhone Modem - with/wo CPU	$99/$179	Seiko 14" Color Display - Trinitron Display	$149	PB 5D0 8MB/Duo 8MB - RAM Module	$39
Apple Design Speaker - I / II	$69/$49	Macintosh 13" RGB - Trinitron Display	$179	610/610D - power supply	$79
Seiko Smart Label Printer - EZ30	$79	LaserWriter IInt - 300 dpi	$299	IIcx/650/7100 - power supply	$89
Iomega Zip Drive - w/cart	$149	LaserWriter IIntx - 300 dpi	$399	Duo Dock - power supply	$119
Focus L-TV Portable Pro - Mac RGB to TV converter	$179	LaserWriter IIf/IIg - 300 dpi	$499/$599	800/840/81D0 - power supply	$129

Centris 660av 8/80/Ethernet

- 25 Mhz 68040
- 80 MB Hard Disk
- New 1 year warranty

NEW FACTORY SEALED $499

Apple Duo Docks Used

- Dock $199
- Dock w/upgrade $249
- Dock II $329
- Dock Plus $349

FROM $199

Duo 2300c 8/750

- 100Mhz 603e PPC
- Active Matrix Color
- 20/1.1GB/14.4 only $1299

FROM $999

PowerBook Duo 280c

- 12/320
- 33Mhz 68040
- Active Matrix Color
- *Add Dock for $299
- *Add 14.4 modem for $50
- *Add 12MB RAM for $100

$749

Apple StyleWriters Printers

- StyleWriter II only $79
- Add printer cable and ink for $20
- SytleWriter 2500 only $249
- 90 day warranty
- Refurbished

FROM $79

Mac IIsi, IIcx, IIci Bundles

- IIsi 5/80 $349
- IIcx 4/80 $379
- IIci 4/80 $399
- 30-day warranty
- Includes 13" Apple RGB, Keyboard & ClarisWorks

FROM $349

APPLE 604 UPGRADE CARDS for PowerMac 7500, 7600, 8500 and 9500

- 120Mhz $49
- 132Mhz $69
- 150Mhz $199
- Dual 180Mhz $699
- 256K Cache $69
- 512K Cache $99

INCREDIBLE! FROM $49

SEE OUR WEB PAGE FOR FULL LINE OF PRODUCTS e-mail: sales@macworks.com • web: http://www.macworks.com/ • Prices Subject to Change • All Prices Represent 2% Cash Discount • We only ship FedEX • *Denotes Refurbished or Used

CIRCLE 444 ON READER SERVICE CARD

MacGlobal

SYSTEMS AND PERIPHERALS ✶ SALES AND SERVICE

Performas
410/466/476 Call
550 5/160 $700
580 5/500/CD $800
631 8/500/CD $550
6200 8/1G/CD $675
5200 8/500/CD $995

Power Macs
7200 8/500 Call
7500 16/500 Call
8500 16/500 Call

Memory
4 MB 72-pin $29
8 MB 72-pin $42
16 MB 72-pin $89

PowerBooks
520 4/160 $850
520C 12/240/19.2 $1195
540C 4/320 $1,395
5300 8/500 $995

Quadras
630 8/250 Call
650/800/840/950 Call

Printers
Stylw II $185.00
Stylw 1200 $175
Laser 300 $299
Laser 320 $490
Laser 4/600 Call

Monitors
14" Color $195
15" App. Multi. $265
17" App Multi. $450
20" GS $540

We Buy!

WE REPAIR MACS!

TOP DOLLAR paid for memory, PowerBooks and CPUs!

[800] 722-8864
Phone: [408] 268-3300
Fax: [408] 997-1400

MacGlobal

CIRCLE 479 ON READER SERVICE CARD

FAST CASH

For ALL Macs, Memory & Peripherals — Working or not

TOP DOLLAR PAID

Mac Traders (800)990-0995

(310) 576-2466 Mon.-Fri. 9 AM-6 PM Sat.10 AM-4 PM (P.S.T.) Fax: (310) 394-7323
1511 Lincoln Blvd. (bet. Broadway & Colorado), Santa Monica CA. 90401

MacBYTE

NO PAYMENT FOR 6 MONTHS!

BUY • SELL • TRADE

- CASH FOR MACS
- NEW & USED MACS WITH WARRANTIES
- FEDEX OVERNIGHT SHIPPING

Visa/Mastercard/Amex/Discover
Diners Club/COD
Local Area On-Site Consulting

800-432-2983
4223 Glencoe Ave., Suite C200
Marina del Rey, CA 90292
FAX: 310 - 448 - 4494
E-MAIL: MacByte@aol.com

CIRCLE 428 ON READER SERVICE CARD

Active Buyers turn to the Macworld SHOPPER

Over 590,000 Macworld subscribers turn to the Macworld Shopper monthly. 531,250 of these buyers have taken action as a result of seeing an ad in the Macworld Shopper.

Macworld Shopper Purchase Study 1993

Want bargains online? Bookmark the Mac Shopper at:

Macworld Online

www.macworld.com/buyers/shframed.htm

Advertise at (800) 888-8622

215 E. Baker St Costa Mesa, CA 92626

SINCE 1988

HRS : M-F 7-6 PST • SAT 10-2 PST

VISIT US AT MACWORLD BOSTON BOOTH# 415

MacBase

A Division of BaseOne Computers

UNIVERSITY, SCHOOL, GOVERNMENT, & FORTUNE 1000 P.Os ACCEPTED

FedEx

LET US CUSTOM CONFIGURE!

(800)951-1230

LEASING PROGRAM AVAILABLE

FAX (714) 428-0778 http://www.macbase.com INT'L (714) 428-0777

7300 & 7600 SERIES

180MHz•16/2GB/12xCD/L2/KB

- PowerPC™ 604 at 180 Mhz
- Three PCI Slots
- Built In Video & Ethernet
- 12x CD ROM
- Includes Keyboard

Monitor Sold Separately

$1889

7300/180	32•2GB•12xCD•KB•Zip	$2149
7300/180	PC Compatible	$2999
7300/200	32•2GB•12xCD•KB	$2299
7600/132	16•1.2GB•CD•Returb.	$1499
7600/200	32•2GB•12xCD•KB	CALL

4400 & 6500 SERIES

6500/250 BUSINESS BUNDLE

- PowerPC™ 603e at 250 Mhz
- 48MB RAM • 4GB • 12xCD
- 33.6bps Fax/Modem
- Business Bundle Software
- Includes MS Office

Iomega Zip Dr

Monitor Sold Separately

$2359

4400/200	16•2GB•8XCD•KB	$1389
4400/200	PC Compatible	CALL
4400/200	Small Business Bundle	$1679
6500/225	32•3GB•12XCD•KB•Bun.	$1799
6500/250	32•3GB•12XCD•KB•Bun.	$1999
6500/275	Creative Studio	$2689
6500/300	64•4GB•12XCD•KB	$2789

8600 & 9600 SERIES

8600/200 32/2GB/12xCD/KB/ZIP

- PowerPC™ 604 at 200 Mhz
- Three PCI Slots
- Built In Digital Video Input
- 256K Level 2 Cache
- Includes Iomega Zip Drive!
- AppleDesign Keyboard

Monitor Sold Separately

$2898

9600/200	32•4GB•12xCD•KB	$2998
9600/233	32•4GB•12xCD•KB	$3099
9600/233	32•DHD•12xCD	$2419
9600/200 MP	32•4GB•12XCD•KB	$3999

POWERBOOK SERIES

DUO 2300c/100

$999

- PowerPC™ 603e at 100 Mhz
- 8 MB of RAM-Expandable
- Active Matrix Screen
- 750 MB HD • Refurbished
- Optional Fax Modem

Duo 2300c 20/1.0GB/M/Ref	$1299
1400cs/117 12•750	$1499
1400cs/117 16•750•6XCD	$1758
1400c/133 16•1.0GB•6XCD	$2769
Internal 8XCD ROM for 1400	$199
3400c/180 16•1GB•L2	$3499
3400c/180 16•1GB•CD•L2	$3999
3400c/200 16•1GB•CD•L2	$4349
3400c/240 16•1GB•12XCD•L2	$5399
Battery for 3400	$ 239
U.S. Robotics 28.8 PC	$ 189

PERFORMA SERIES

6360 • 16/1.2 GB • 8xCD/KB

Monitor Sold Separately

$999

6200 CD	8•1.2GB•CD•Ret	$ 799
6200 CD	18•1.0GB•CD	$ 849
6218 CD	18•1GB•CD•15"	$ 999
5260	16•800•4xCD•15"	CALL
6300 CD	18•1.2GB•CD/KB/15"/M	$1299
6400/180	18•1.6GB•CD	$1259
6400/200	16•2.4GB•CD	$1379
6400/200	Video Edition	$1995
Apple CD-ROM 600e Returb.		$ 179

UMAX

ADVANCED SCALABLE A.S.P.D. PROCESSOR DESIGN

S900L/225 MHz

UMAX® Computer Corporation

S9000P/250	64•4GB•CD•IMS	$6389
S900L/250	32•2.1GB•CD•IMS	$4399
S900L/233	32•2.1GB•CD•IMS	$3389
S900L/200	32•2.1GB•CD•IMS	$2799
S900L/180	32•2.1GB•CD•IMS	$2549
J700/180	24•2.1GB•CD•IMS/33.6	$1899
C600/200	32•2GB•CD•Zip/10B	$1799
C600/240	24•2.1GB•CD•33.6•Kb	$1629
C500e/180	16•1.2GB•CD•33.6	$1059
C500/140	16•1.6GB•CD•KB	$895

MOTOROLA•STARMAX

MAC OS LOADED

- MT/4000
- 32•4.3GB•16XCD
- 512K L2 Cache
- IMS Twin Turbo
- ZIP DRIVE
- Enterprise Bundle Software

MOTOROLA Computer Group

$2549

3000	DT/200-6 16•1.2GB•CD	$1289
3000	MT/200-6 32•2.5GB•CD•28.8	$1699
3000	MT/200-6E 32•2.5G•CD/Zip/BT	$1969
3000	MT/200-6E D 32•2.5G•CD/Zip	$2289
3000	MT/240-6S 32•2.5GB•CD/28.8	$2139
3000	MT/240-6E 32•2.5GB•CD•Zip	$2359
4000	MT/160-6S 32•2.5GB•CD•28.8	$1789
4000	MT/200-6E 32•4.3GB•CD•Zip	$2549
5000	MT/300-6E 32•4.3GB•CD•Zip	$2599
5000	MT/300-6E 32•4.3GB•CD•Zip	$3159

MONITORS

APPLE MULTISCAN 20" DISPLAY

- 0.28 mm Aperature Grille
- 1024 X 768 at 75Hz
- 17" Diagonal
- 15.8" Diagonal Viewing Image

Multiple Vision 1705

$589

Multiple Scan 15AV Returb.	$349
Multiple Scan 20 20"	$1429
Multiple Scan 1710 17"	$789
Multiple Scan 1710 AV 17"	$849
Multiple Scan 850 20"	$1659
Multiple Scan 850 AV 20"	$1789
SONY MultiScan 100SF 15"	$379
SONY MultiScan 200SF 17"	$779
SONY MultiScan 300SF T 20"	$1589
SONY MultiScan MW900 24"	$4299
NEC C400 14"	$279
NEC C500 15"	$349
NEC M700 17"	$749
NEC P1150 20"	$1689
REFURBISHED 15" MULTIPLE SCAN	$299

PRINTERS

APPLE•HEWLETT PACKARD

- 720 X 360 dpi clear printing
- 62k of buffer memory
- 64 scalable True Type™ fonts
- Optional Ethernet Card
- REFURBISHED

$199

Color StyleWriter 2500

APPLE Color Printer 11x17"	$ 299
Color StyleWriter 2200	$ 249
LW 12/640 w/Duplexing Opt	$1998
LW 16/600	$2059
Color LW 12/660	$5099
Hewlett Packard 4MV	$2549
Hewlett Packard 6MP	$ 869
Hewlett Packard 5M	$1598
Hewlett Packard 5 SIMX	$3459

MEMORY

FREE 2 DAY FEDEX SHIPPING!

8 MB DIMM	$ 59
16 MB DIMM	$ 84
32 MB DIMM	$159
64 MB DIMM	$289
256k/512k L2 DIMM Cache	$49/109
1 MB V-RAM	$ 39
4 MB/8 MB SIMM	$40/$55
16 MB SIMM	$ 95
32 MB SIMM	$139
16MB•PB 1400c	$219
24 MB/48 MB•PB 1400c	199/299
64 MB•PB 1400	CALL
16 MB•PB 3400	$149
32 MB•PB 3400	$199
48 MB•PB 3400	$299
64 MB•PB 3400	$469

SPECIALS

ACT FAST!

LIMITED SUPPLY

EQ-Iomega Jazz Dr Ext	$359
EQ-Iomega Zip Drive Int*	$109
Quicken 7.0 for mac	$29.95
Apple 2 GB Hard Drive	$299
Apple 4.0 GB Hard Drive	$399
Apple 750 2.5" IDE	$99
Apple 150 Mhz Processor Card	$399
Apple Performa 14.4 Int Mod	$49
Apple 8bit video out (1400c)	$179
Adobe after Effects 3.0	$49
Adobe Premiere	$69
Seagate 2.1GB Barracuda	$499
Kensington Turbo Mouse	$89

CALL FOR THE LATEST PRICES! & OTHER PRODUCTS

Dealer Inquiries welcome. Returns subject to restocking fee. Prices reflect C.O.D. or cash and are subject to change without notice. Purchase Orders subject to credit approval.

IBM. COMPAQ StarMax INFINIA TOSHIBA MOTOROLA Computer Group UMAX Computer Corporation

CIRCLE 443 ON READER SERVICE CARD

FANTASTIC PRICES ON ALL POWER PC's!

PowerCenter 120/132MHz

- POWERFUL 604 PROCESSOR!

Faster than 603e!
- 16 MB RAM
- 256 Level-2 Cache
- Multimedia CD-ROM Drive
- 1.2GB Hard Drive
- 3 Fast PCI Expansion Slots

from $899*

PowerMac 8500

- POWERFUL 604 PROCESSOR!
- 16 MB RAM
- 256 Level-2 Cache
- Multimedia CD-ROM Drive
- 1.2GB Hard Drive
- 3 Fast PCI Expansion Slots

from $1499*

PowerCenter 150/166MHz

- POWERFUL 604 PROCESSOR!

Faster than 603e!
- 16 MB RAM
- 256 Level-2 Cache
- Multimedia CD-ROM Drive
- 1.2GB Hard Drive
- 3 Fast PCI Expansion Slots

from $1199*

PowerTower Pro 180/225MHz

- POWERFUL 604e PROCESSOR!

Fastest RISC Processor
- 16 MB RAM (expandable to 1GB)
- 1MB Level-2 Cache
- Multimedia CD-ROM Drive
- 2GB AV Hard Drive
- 6 Fast PCI Expansion Slots
- 8MB IMS Twin Turbo Graphics Card

from $1999*

PowerMac 7600

- 16 MB RAM
- 256 Level-2 Cache
- Multimedia CD-ROM Drive
- 1.2GB Hard Drive

from $1199*

Macintosh IIcx

- 15" Monitor & Keyboar
- 8 MB RAM, 250 mb HD

only $299

PowerComputing

*With Qualifying Monitor Purchase, All Units Factory Recertified, Up to 4 Year Warranties Available

MONITORS

21" DiamondTron Monitor from $1299
- RasterOps Superscan MC21 NEW! $1599
- Ikegami 21" Diamondtron NEW! 2 YEAR WARRANTY! $1699
- Radius Multiview 21 $1489
- Radius PrecisionView 21 from $1599
- Radius 21" PressViews from $1559
- SuperMac 21" Color Display from $1099

20/19" Trinitron Technology from $899
- Radius PrecisionColor 19 $849
- 20" Multi-Resolution NEW! $1329
- Radius SuperMatch 20 Plus $999
- Radius PrecisionColor 20v $1299
- Radius Intellicolor 20 from $1390

17" SuperMac Multi-Scan from $499
- E-machines T16 II $529
- Radius PrecisionView 17 $649
- Radius PrecisionColor 17 $745
- Radius PressView 17sr NEW! $1799
- PrecisionColor 15" Pivot $499
- Radius 15" Pivot from $199
- Portrait Display Labs 1700 NEW! from $859

Two Page Grayscale from $499
- Radius Full Page Display $299
- 20" Grayscale Display $599
- 21" Grayscale Display $699

NEC, Sony, Mitsubishi, Viewsonic, Apple Monitors Also Available!!
Need cards to drive your Monochrome/Grayscale Monitors? CALL US!!

CLEARANCE

NO REASONABLE OFFER WILL BE REFUSED!
- Emachine video card 832x624 $85
- Spectrum 24 Series III 1024x768 $109
- Supermac Thunder 8 Accel. 1152x870 $99
- Thunderstorm for Photoshop Acceleration $75
- Atto Silicon Express 4 SCSI Accelerator $199
- Video Spigot IIsi and LC (video capture) $89
- 25Mhz Speed Card for Se $79
- Superview/Powerview (2pg's on Pwrbk & SE) $99
- Radius Rockets Accel. for Mac II Series $159
- Radius 19" Trinitron w/ Nubus card $799
- Emachine Color Page 15" w/ card $249
- 16" Color Monitors $299

ALL SALES FINAL ON CLEARANCE ITEMS!!!!

GRAPHICS CARDS

PCI VIDEO Cards
- IMS Twin Turbo 128 $199
- Radius PrecisionColor 8/1600 $399
- ATI XClaim VR from $499
- Radius Thunder 3D $CALL
- ThunderColor $CALL
- ThunderPower $CALL

NUBUS VIDEO Cards
- 1600x1200 (21" or greater resolution) from $599
  Thunder IIGX and Thunder IVGX series
- 1152x870 (21" resolutions) from $299
  PrecisionColor 24x, Spectrum Power 1152, Prism GT
- 1024X768 (20" resolutions) from $199
  PrecisionColor 24xk, Spectrum 24, Paintboard Lightning
- 832x768 (17" resolutions) from $99
  PrecisionColor 24xp, Futura Series

Se/30, LC, or PDS bus?? Call Us!!
THOUSANDS OF CARDS IN STOCK!!! Call for prices on models not listed.

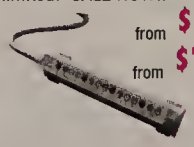
- Photoshop Accelerators from $199
- Color Calibrators from $149

DIGITAL VIDEO

Broadcast Quality Blowout!

Because of special purchasing opportunities, CRA Systems is now able to offer Broadcast Quality digital video products at unbelievably low prices! Quantities at these prices is very limited. CALL NOW!!

- Video Vision Studio from $1199
- Video Vision Telecast from $1599
- Video Vision Studio Array $1299
  - 4gb Array with SCSI Accelerator



- Full Motion Digital Video Workstation $2499
  - PowerMac 8100 Series
  - VideoVision Studio
  - 32mb RAM, 2GB AV Hard Drive, CD ROM
- Media 100QX and 100QX Component $CALL
- TRUEVISION Targa 2000 PCI from $2799
- Video Spigot Cards from $99
  - Spigot II Tape, Spigot Nubus, LC and IIsi
- Video Spigot Power and Pro AV from $399
  - FULL MOTION, full screen capture and playback
- Video Vision Basic from $999

MiroMotion, Bravado products available. Call for pricing.

COMPUTERS

Apple Computer, Inc.
- PowerMac 8500 16mb/2.0gb from $1499
- PowerMac 7600 16mb/2.0gb from $1199
- PowerMac 8100 16mb/700mb from $999
- PowerMac 7100 16mb/700mb from $799
- Macintosh IIcx w/15" Full Page Monitor from $299

Call for prices on models not listed!

Power Computing Corporation
- PowerTower Pro 225 16mb/2.0gb $2599
- PowerTower Pro 180 16mb/2.0gb $1999*
- PowerTower 180 16mb/1.2gb $1599*
- PowerCenter 180 16mb/1.2gb $1499*
- PowerCenter 166 16mb/1.2gb $1399
- PowerCenter 150 16mb/1.2gb $1199*
- PowerCenter 132 16mb/1.2gb $1099
- PowerCenter 120 16mb/1.2gb $899*

Call for prices on models not listed!

Umax Computer Corporation
- SuperMac C600 & C500 Series from $869
- SuperMac S900 Series from $2659

Motorola Computer Group
- StarMax 3000 Series from $1199
- StarMax 4000 Series from $1789
- StarMax 5000 Series from $CALL

Complete Workstations
- PowerMac 8500 16mb/2.0gb, 20" Trinitron Monitor $2499
- PowerMac 7600 16mb/2.0gb, 17" Multi-Scan Monitor $1699
- Video Editing Workstation $2999
  PowerMac 8100 16mb/2.0gb, Video Vision Studio & 17" Monitor

* with purchase of qualifying instock monitor

PRINTERS

Apple Laserwriters from $199
- Laserwriter, IINT, Select 360, Pro 630 plus many more!!

QMS 860 Hammerhead $1999
- 600 dpi 11 x 17 Tabloid Canon Engine

Hewlett-Packard 4MV $2499
- 600 dpi 11 x 17 Tabloid Canon Engine

QMS 825 8ppm Canon Engine, Postscript IBM/Mac $399

Supermac Proof Positive from $3999
- Full Page and Two Page Options available

Epson, Hewlett-Packard & Tektronix Also Available!!

NEW AND FACTORY RECERTIFIED

4 YEAR EXTENDED WARRANTIES AVAILABLE ON MOST PRODUCTS

CRA Systems, Inc. www.crasystems.com 800-375-9000

CRA Systems, Inc. 300 South 13th St., Waco, TX 76701 Monday thru Friday 9AM to 7PM CST Saturday 10AM-4PM *Sales Dept.Only*
Domestic Sales sales@crasystems.com Fax 254.750.9050 Consultants/Dealers 254.754.2120 International Sales 254.754.2120

FedEx

Prices reflect 2% cash discount. Prices subject to change. Not liable for typographical errors. Dealers and consultants call for quantity pricing. We ship anywhere.
All Monitors, Printer, and CPU's are Factory Recertified unless otherwise stated. Call for latest pricing & availability on NEW Options.

CIRCLE 430 ON READER SERVICE CARD

THE LLB COMPANY, INC.
1-800-848-8967

International: 206.746.0229
Web Site: http://www.llb.com
email:sales@llb.com
Fax: 206.746.5168

Established 1990

DIMMS
168-pin

128MB 70NS	$1220
64MB 60NS	309
32MB 60NS	160
16MB/8MB 60NS	95/55

MEMORY

DIMMS EDO 5VOLT
POWERBASE

64MB 60NS	$339
32MB 60NS	187
16MB/8MB 60NS	105/55

5% OFF ANY MEMORY PURCHASED WITH SYSTEM

72-PIN SIMMS

32MB 60NS	$150
16MB 70/60NS	75/77
8MB 70/60NS	45/47
4MB 70/60NS	24/26

POWERBOOK CORNER

Powerbook 2400

48MB	$395
36MB	268
32MB	247
20MB	175
16MB	119
8MB	51

Powerbook 3400

128MB	$1340
96MB	905
64MB	489
32MB	206
24MB/16MB	170/120

Powerbook EDO

32MB	$224
16MB	107
8MB	68
4MB	62

Powerbook 150

28MB	$234
20MB	170
14MB	125
8MB	70

Powerbook 190

32MB	$227
16MB	120
12MB	108
8MB	70
4MB	55

Powerbook 5300

48MB	$359
32MB	224
16MB	120
8MB	65

Powerbook 1400

24MB	$199
16MB	139
8MB	77

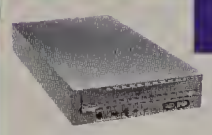
DIMMS EDO 3VOLT
STARMAX/PM4400

64MB 60NS	$385
32MB 60NS	202
16MB/8MB 60NS	105/59

30-PIN SIMMS

16MB 70NS	$134
8MB 70NS	81
4MB 70NS	28
2MB 70NS	18

LACIE



LACIE LIMITED
12X CD-Rom $199

LACIE 2.1 Int. Quantum Fireball	$356
Apple 3GB/4GB Ext. Hard Drive	552/801
LACIE Scanner Pro Office	399
LACIE Silverscanner IV	1475

UMAX. Systems

Supermac S900 L250 Tower	$4735
Supermac S900 L233 Tower	3712
Supermac J700 180MHz Desktop	1999
Supermac C600 200MHz Minitower	1499

Printers & Scanners

HEWLETT PACKARD

5M Laserjet	$2750
6MP 8PPM 600 DPI Laser	955

APPLE

Color Laser Writer 12/600	$6465
Laserwriter 16/600	2249

UMAX

Mirage Engine	$5469
Powerlook II Engine	1505
Powerlook 2000 Engine	2976
Vista S-12 SOHO Bundle	477

EPSON

Stylus 600 Inkjet	$310
Stylus 800 Inkjet	466
Stylus Color Pro XL	1799

Zip Drive
with cartridge
$149

iomega
ZIP Cartridges 10PK $199

Verbatim CDR
74 min 640MB
10-pack
$62

Modems

USRobotics	
Sportster 33.6 V.34 IInternet Bndl	$175
Sportster 56k Fax modem	215
Supra	
#5033XP 33.6 V.34 Fax Modem	99
#5056 EMC 56k V.34 Fax Modem	166

MOTOROLA
Authorized Reseller

MINI TOWERS

$1429
Monitor Sold Separately
Starmax AMT 3180 6S w/28.8 Modem

Starmax AMT 3200 6E POWERPC 603e/200MHz/32MB RAM	$1953
Starmax AMT 3200 6EO PowerPC 603e/200MHz/32MB RAM	$2345
Starmax AMT 3200 6S w/28.8 Modem PowerPC 603e/200MHz/16MB RAM	$1719
Starmax AMT 3240 6S w/28.8 Modem PowerPC 603e/240MHz/32MB RAM	$2176
Starmax AMT 4160 6S w/28.8 Modem PowerPC 604e/200MHz/32MB RAM	$1857
Starmax AMT 4200 6 PowerPC 604e/200MHz/32MB RAM	$2495
Starmax AMT 4200 6EO w/Zip Drive PowerPC 604e/200MHz/32MB RAM	$2932

DESKTOPS

Monitor Sold Separately

Starmax ADT 3180 6S w/28.8 Modem	$1284
Starmax ADT 3200 6	$1339

Electronic Orders: E-Mail: sales@llb.com • Web Site: http://www.llb.com • PO's are accepted upon approval. • All major credit cards accepted & charged when order is shipped. • No surcharge on credit cards. • Prices subject to change, not responsible for errors. • We welcome International orders. • Orders received before 8:00pm EST weekdays shipped same day. • Open 6am to 7pm M-F 8am to 1pm Sat. PST • Returns subject to 15% restocking fee.
The LLB Co., Inc. • 13228 NE 20th St., Suite. B, • Bellevue, WA 98005

CIRCLE 563 ON READER SERVICE CARD

Kingston TECHNOLOGY

MEMORY

TECHWORKS

CENTON

PNY

ADVANTAGE MEMORY CORPORATION

SOUTHLAND MICRO SYSTEMS

Viking

Newer RAM

POWERBOOK RAM

NEW! 3400/1400/5300 500/190/2300 SAMSUNG

4MB.....$49
8MB.....$69
16MB.....$105
32MB.....$185
48 MB.....$299!

PowerComputing

NEC L2 CACHE OKI

256k 61/71/81xx.....$19
1MB NEW! 61/71/81.....$129
256k - 72/75/85.....$45
512k - 72/75/85.....$79
1MB NEW! 72/75/85.....$159
256k - 54/64.....$65
512k - 54/64.....$95

MITSUBISHI VRAM MOTOROLA

256k.....$13
512k.....$21
1MB 72>85xx.....$29
2MB STARMAX.....$69
2MB ATI/9500.....$65

HIGHEST QUALITY! LOWEST PRICES! GUARANTEED!

SOURCE COMPUTING

800/900-4599

http://www.sourcecomp.com

Voice 954/725-9777 • Fax 954/725-9977

All products feature a 30 day money back guarantee. All memory products are brand new and carry a limited lifetime warranty. Government and educational PO's are welcome. No surcharges on credit cards. Order 24 Hours! Call for latest pricing as prices are subject to change without notice!

LIFETIME WARRANTY!

DISCOVER NOVUS VISA FedEx MasterCard AMERICAN EXPRESS Cards

WE WILL BEAT ANY PRICE!

DIMMS FUJITSU

168pin • FPM/EDO/3.3v

8 MB.....$39/41/45
16 MB.....$75/79/85
32 MB.....$125/129/135
64 MB.....$279!/285/289

StarMax IBM

SIMMS

72pin • FPM/EDO

4 MB.....$19/21
8 MB.....$35/37
16 MB.....$65/69
32 MB.....$135/139!!

30 PIN SIMMS • 70/60ns

1MB.....$8
2MB.....$16
4MB.....$22
16 MB.....$95!

CIRCLE 409 ON READER SERVICE CARD

MEMORY

Lifetime Warranty

1-888-808-6242

168 PIN DIMM
8/16MB __ $45/79
32MB _____ $155
64MB _____ $295

EDO DIMM 3.3V
16/32/64__$89/179/369

EDO DIMM 5V
16/32/64__$82/165/310

72 PIN SIMM
4/8MB ___ $20/38
16MB _____ $75
32MB _____ $139

30 PIN SIMM
1/2MB ___ $9/19
4MB _____ $25
16MB _____ $90

PowerBook Memory

PB 1400
16/32/48MB ___ $135/229/335

PB 3400
32/64/1288MB___$135/229/335

PB 5300, 500 & 190
16/24MB _____ $125/175
32/48MB _____ $219/329

PB DUO Series
12/20MB _____ $129/179
28MB _____ $240

PB DUO 2300
16/32MB _____ $139/229
40/48MB _____ $269/335

Memory for Printers__Best Prices
Cache and VRAM ___ Best Prices

We Specialize in PowerBook Memory

eritech INTERNATIONAL, INC.

Phone:(818)244-6242 ❖ FAX:(818)500-7699
prices subject to change
Internet:http://www.eritech.com ❖ e-mail:eritech@sprynet.com
4551 San Fernando Road, Suite 110, Glendale, CA 91204

CIRCLE 469 ON READER SERVICE CARD

4040 Quaker Bridge Rd. • Mercerville, NJ 08619

Le computer

Iomega Zip Drive 100 ..... $149
Canon Powershot 600 ..... $899
Olympus D200L $649
Olympus D300L $849
Chinon FS-3000 ..... $850
Minolta RD-175 ..... $5400
Kodak DCS200ni (used) $2495
Kodak DC25 ..... $499
Kodak DC50(used) $500
Konica Q-Mini $599
Nikon CoolScanII $1199
Nikon LS-1000 ..... $2100

CALL FOR H/D PRICING

Macintosh Repairs & Upgrades!

- ALL MAC REPAIRS
- MEMORY UPGRADES
- CPU UPGRADES
- H/D UPGRADES
- PHOTO QUALITY PRINTING
- DIGITAL CAMERA EXPERTS
- DIGITAL IMAGING SERVICES
- SCANNING SERVICES
- DIGITAL RETOUCHING
- ALL WORK GUARANTEED

SIMMS

DIMMS

WE BUY • SELL • TRADE ALL MACINTOSH EQUIPMENT

CIRCLE 422 ON READER SERVICE CARD

MEMORY TECHNOLOGIES TEXAS

www.memory-tech.com

Web OrderPrices

DIMMS
32Mb $144
64Mb $285

SIMMS
16Mb $ 74
32Mb $139

EDO DIMMS
3.3V
32Mb $149
64Mb $299

5V
32Mb $148
64Mb $290

PowerBooks
3400-24Mb $155 | 1400-24Mb $167
190-24Mb $170 | 5300-24Mb $159

High Quality•Lifetime Warranty•2k Refresh

Prices are subject to change

info@memory-tech.com Fax: 512/457-1133

We accept MasterCard, Visa, American Express, & Discover

800•950•8411

CIRCLE 414 ON READER SERVICE CARD

"I always look at the entire Macworld Shopper section to see what is available. I also like to check the prices on all the different products."

-Owner, Computer Consultant

Macworld SHOPPER

GIVE YOUR COMPUTER MEMORY SALES A BRAND NEW EDGE

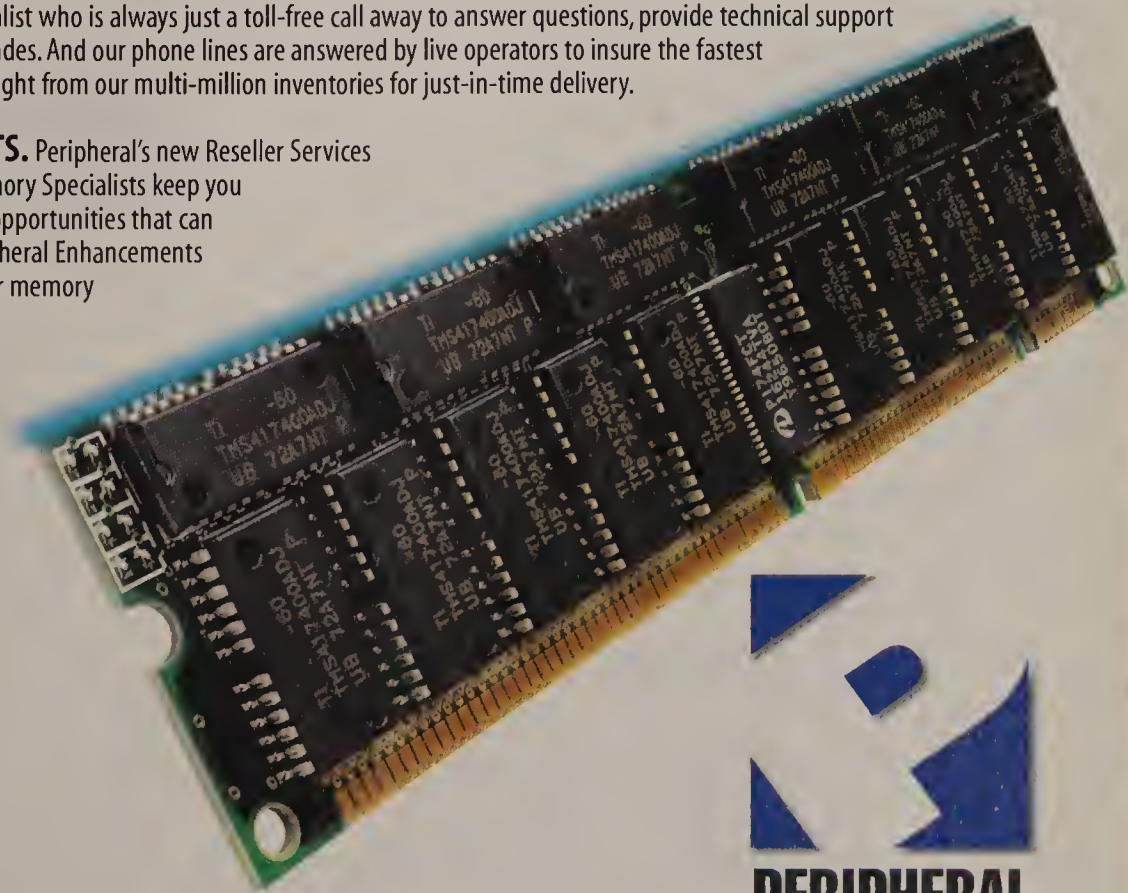
Introducing the new edge in computer memory technology from a company with a 10-year reputation for quality, value and service — Peripheral Enhancements Corporation.

100% U.S. MANUFACTURED. 100% QUALITY. Peripheral memory products are designed, engineered and manufactured in our own U.S. plants to meet the most stringent OEM specifications for power and performance. The distinctive Peripheral *Blue Edge* insures you that your Peripheral memory has been 100% double tested and guaranteed for life against defects in materials and workmanship.

PERIPHERAL PERFECT SERVICE. Peripheral memory is backed by Peripheral Perfect Service. Every memory product comes with the name of your personal memory specialist who is always just a toll-free call away to answer questions, provide technical support or give you information on memory upgrades. And our phone lines are answered by live operators to insure the fastest possible service. Orders are shipped overnight from our multi-million inventories for just-in-time delivery.

THE EDGE IN SALES AND PROFITS. Peripheral's new Reseller Services give you a real selling edge. And our Memory Specialists keep you informed of market conditions and sales opportunities that can really increase your bottom line. Call Peripheral Enhancements today for complete information on how you can give your computer memory sales and profits a brand new Edge.

THE EDGE. Look for the distinctive *Blue Edge* on your memory products. It's your assurance of Peripheral quality and service.



888/676-EDGE

The New Edge In Computer Memory Technology

PERIPHERAL ENHANCEMENTS CORPORATION
327 East 14th Street, Ada, OK 74820 USA
tel. 405/332-6581 • fax 405/436-2245 • email sales@peripheral.com

PERIPHERAL ENHANCEMENTS LIMITED
34 Henrietta Street Covent Garden, London WC2E 8NA United Kingdom
tel. +44(0) 171 546 8080 • fax+44(0) 171 546 8090

Check out the New Edge on the Worldwide Web at www.peripheral.com

See us at the Macworld Expo, Booth # 1536

PERIPHERAL

CIRCLE 454 ON READER SERVICE CARD

Run Your Mac Faster & Save!

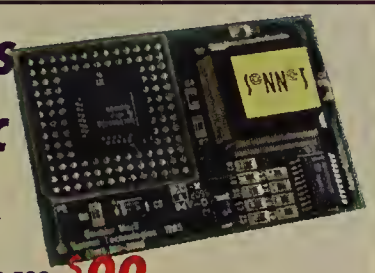
Accelerate Mac LC, LC II, Color Classic, IIci, IIsi, IIvx, II, IIcx, IIx, or Performa 600 to '040 Speed Starting at $199

Sonnet Presto™ LC 040 50/25 MHz accelerators increase Mac LC, LC II, or Color Classic performance 470% as fast as a stock machine (processor performance, MacBench2). Use RAMDoubler or Virtual Memory to break the 10MB barrier with the Presto LC (except Mac LC, OS 7.1+req'd). The Presto LC is only $199, or with a hardware Floating Point Unit (FPU), only $249.

The 80/40MHz version for the Mac IIci, IIsi*, IIvx, II*, IIcx*, IIx* or Performa 600 increases processor performance by 300-500%. The 80/40 MHz Presto at only $299 includes 128K level 2 cache, or $399 with FPU too.

All Prestos are 100% application software compatible and run through System 7.6.1. The Prestos are easy to install in the Macs' processor direct slot, and come with clear installation instructions. (*Adapter required)

Allegro's Fast 68030s Give New Life to Mac SE, SE/30, II, IIx, LC, LC II, Color Classic from $99

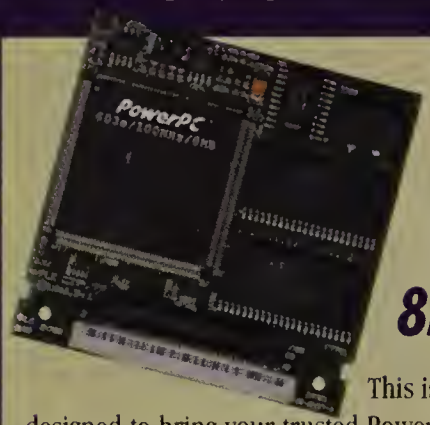


Give your Mac more muscle. Sonnet Allegros™ are packed with features at bargain prices. The 33MHz Allegro LC for the Mac LC, LC II, Color Classic doubles your cpu speed, adds 16K level 2 cache and includes an FPU–all for only $149. The 33MHz Allegro SE increases performance 460%, includes an FPU and 4 SIMM slots to expand memory up to 16MB for a bargain $199. Allegro Mac II, IIx, SE/30 models double '030 speed to 33MHz for $99.

7300-9600 Processors

132MHz 604	$99
150MHz 604	$199
200MHz 604e	$699
233MHz 604e	$999
180MHz 604eMP	$999

Give your Power Mac 7300, 7500, 7600, 8500, 8600, 9500, 9600 a PowerPC 604/604e upgrade. These power-packed upgrades are 100% compatible with existing software and hardware. Just plug one in and enjoy the productivity you deserve. Add 1MB cache & double performance. MP= multiprocessors.



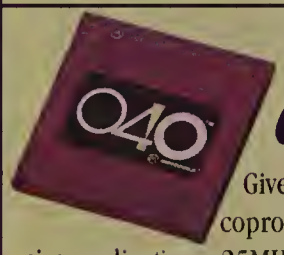
Upgrade Your PowerBook 520/540 to 100MHz 603e with 8MB Memory for $399*

This is the genuine Apple Computer upgrade designed to bring your trusted PowerBook 520/540 into the PowerPC generation with a speedy 100MHz 603e PowerPC processor. With this upgrade you can run all native PowerPC applications. Upgrade your reliable ethernet-equipped PowerBook to PowerPC, and prepare for the MacOS future. The upgrade includes 8MB of memory and is compatible with your existing RAM expansion board. *Price after a $100 discount for trade-in of existing 68LC040 card.

Run the Fastest Quadra Ever! 100/50 MHz is Faster than 840AV

Only $399

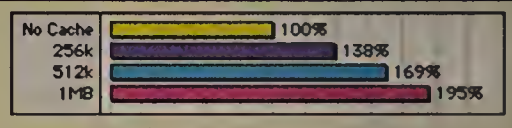
Plug the Sonnet QuadDoubler™ into a Quadra 610, 660AV, 700, 900, or Centris 610*, 660AV, 650 and run virtually twice as fast as before for only $399. No software upgrades or changes are required. Just plug the QuadDoubler into your CPU socket and power up your Mac. A CPU extraction tool is even included to simplify installation. The QuadDoubler includes a Floating Point Unit for superfast rendering or calculations. A cache card is also available for the Quadra 700/900 for even more performance. *The Centris 610 QuadDoubler runs at 80/40 MHz and is value-priced at $299 (without FPU $199).



Add Math Coprocessor to 68040 Macs & PowerBooks

Give your Quadra, Centris, or PowerBook 520/540 a math coprocessor for rendering, Photoshop, CAD, or other Math intensive applications. 25MHz 68040 $125*, 33MHz 68040 with heat sink $169*. Add a full 66/33MHz 68040 with FPU to your PowerBook 520 or 540 for $199*. This also speeds 520 to 66/33MHz. Call for PB190, Duo280 FPU. *68LC040 trade-in req'd.

Cache Speeds!



PowerMac with 1MB cache runs 2x as fast as cache-less (200MHz 604e, MacBench 4). We build 'em. Resellers call.

256K	6100/7100/7200/7500	$49
512K	7200/7300/7500/7600/8500/8600	$89
1M	7200/7300/7500/7600/8500/8600	$159
256K	5200/6360/5400/5500/6400/6500	$79
512K	5200/6360/5400/5500/6400/6500	$149
1M	5200/6360/5400/5500/6400/6500	$199

"The most cost effective way to bump performance!"

MasterCard

SONNET™ SONNET TECHNOLOGIES, INC.
18004 Sky Park Circle, Irvine, California 92614
714-261-2800 Fax 261-2461 sales@sonnettech.com

800-786-6260
http://www.sonnettech.com

VISA

VISA and MasterCard no surcharge. We used to have a surcharge; we don't anymore. Government, corporate and education P.O.s welcome. Tammy works diligently to process every in-stock order within 24 hours. You can wish her the best for her upcoming July wedding if you need to check on order status. One year limited warranty on all products. If you step on it and break it we limit the warranty, otherwise we don't limit it too much. All returns require an authorization and are subject to a restocking fee. ©1997 Sonnet Technologies, Inc. Sonnet, the Sonnet Logo, Allegro, Presto and QuadDoubler are trademarks of Sonnet Technologies.

CIRCLE 463 ON READER SERVICE CARD

Mac USA
Quality & Service in Memory & Storage

LACIE
2X REC/6X Play Recordable CD-Drive
Only $389

30-

SIMMS

4MB	$24
8MB	$36
16MB	$69
32MB	$139

DIMMS

8MB	$39
16MB	$78
32MB	$139
64MB	$279

ZIP DRIVE

ONLY $139

Zip drive w/ tools cartr.....$139
Zip w/ 11 cart.....$26
100MB Zip cartridge.....$14
1GB Jaz Cartridge.....$85

HARD DRIVES

1 GB JAZ DRIVE (no cartridge).....$309

Capacity	Model	Access	RPM	Interface	Drive cache	Int.	Ext.
1.2 GB							
Quantum	TM1280S	12 Ms	4500	Ultra SCSI-3	128k	$195	$259
2.1 GB							
Quantum	TM2110A	11 Ms	4500	EIDE-4	128k	$209	$259
Quantum	TM2110S	11 Ms	4500	Ultra SCSI-3	128k	$279	$339
Quantum	AT32150S	8 Ms	7200	Fast SCSI-2	1024k	$429	$489
Seagate	52160N	11 Ms	5400	Ultra SCSI-3	128k	$329	$389
4.3 GB							
Fujitsu	M2934SAU	8 Ms	7300	Fast SCSI-2	512k	$659	$699
Fujitsu	M2954SYU	8 Ms	7300	Ultra SCSI-3	512k	$769	$819
IBM	DCAS-34330	8.5 Ms	5400	Ultra SCSI-3	512k	$549	$599
IBM	DCAS-34330W	8.5 Ms	5400	Ultra Wide SCSI-3	512k	$579	$619
Seagate	14207N	9Ms	7200	Fast SCSI-2	512k	$749	$799
4.5 GB							
Micropolis	4345WS	7.9 Ms	7200	Ultra Wide SCSI-3	512k	$819	$869
Quantum	AL34550S	8 Ms	7200	Ultra SCSI-3	512k	$769	$829
Quantum	AL34550SW	8 Ms	7200	Ultra Wide SCSI-3	512k	$809	$859
9.1 GB							
Micropolis	3391NS	7.9 Ms	7200	Ultra SCSI-3	512k	$1399	$1459
Quantum	AL39100SW	8 Ms	7200	Ultra Wide SCSI-3	1024k	$1329	$1389

ll Memories & Mac USA external drives are tested. Drives are pre-formatted & shipped w/ software and all cables needed!
rices are cash discounted and subject to change without notice! Mac USA is not responsible for typographical errors!
ETURN PDLICY:Please, if you want to return any merchandise ,ask for an RMA# first , otherwise, it will not be accepted!

Call 1-800-680-1112

CIRCLE 420 ON READER SERVICE CARD

MEMORY

Lifetime Warranty!
BEST PRICES!
Apple® Authorized Value-Added Reseller

MAC Solutions

168 Pin DIMMs

8mb	$ 38
16mb	$ 74
32mb	$ 138
64mb	$ 272

PBook 5/53/14/34

8mb	$ 60
16mb	$ 105
24mb	$ 155
32mb	$ 215

Specials

GV 56k In Stock	$Call
Quantum 3.2 gb	$ 335
Iomega Jaz Drive	$ 385
Jaz Carts In Stock	$ 95

72 Pin SIMMs

4mb	$ 16
8mb	$ 32
16mb	$ 64
32mb	$ 129

30 Pin SIMMs

1mb	$ 10
2mb	$ 15
4mb	$ 22
16mb	$ 85

Cache/VRAM

61/71/81	256k	$ 12
64/54	256k	$ 65
72/76/85	512k	$ 80
1 mb	VRAM	$ 25

All prices are subject to change. Limited to stock on hand. #612

WE BUY, SELL & TRADE MACS!
CALL (800)80-WE-BUY

1416 Wilshire, Santa Monica, CA 90403
Tel: (310) 394-0001 Fax: (310) 394-7744
www.macsolutions.com
University & School P.O.'s Welcome
VISA-MasterCard-AMEX no surcharge

MAC Solutions

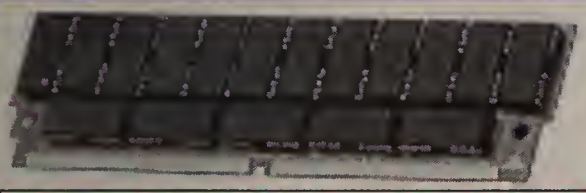
(800)809-3289

CIRCLE 410 ON READER SERVICE CARD

MEMORY

LIFETIME GUARANTEE

PC & Mac Memory in stock at Lowest Prices



SIMMs / DIMMs / EDO / Printer / Notebook / DIPs/ SIPs / VRAM / Cache

Iomega ZIP & JAZ Drives

GlobalVillage™ Modems

FOCUS™ Connectivity Products

www.datamem.com..Updated Daily

DMS

Data Memory Systems, Inc.
24 Keewaydin Dr. Salem, NH 03079
Tel: 603-898-7750
Fax 603-898-6585
email-sales@datamem.com

DISCOVER VISA

800-662-7466

University,Government & Corporate P.O.s with Approved Credit

CIRCLE 447 ON READER SERVICE CARD

MEMORY

"Computer Show" Prices Everyday!

Mohawk Memory Co., Inc.

SIMMS ◆ DIMMS ◆ EDO ◆ ECC ◆ VRAM ◆ CACHE ◆ PRINTER ◆ LAPTOP ◆ POWERBOOK

Kingston® Memory Available

Fax: (508) 897-0009
Email: simdim@mohawkmem.com
Webstore: www.mohawkmem.com
16A Waltham St. Maynard MA 01754
Visa MC Discover AMEX PO's O.A.C.

1(800) 986-6429

Good Old-Fashioned New England Service

A&R COMPUTING 1221 West 6th Street Ste C Austin, TX 78703

memory

1-800-832-8802
CALL FOR CURRENT BEST PRICES

all items are new!

DIMM	16MB	$ 70
	32MB	$140
SIMM	16MB	$ 62
	32MB	$124

shipping from $4

TOP quality!

lifetime warranty!

OUR PRICES ARE THE BEST, NO MATTER WHAT'S BEEN ADVERTISED IN THIS MAGAZINE!

prices subject to change

www.anrweb.com
VISA • Mastercard • Discover
NO SURCHARGE FOR CREDIT CARDS

CIRCLE 411 ON READER SERVICE CARD

MEMORY BLOWOUT

Prices Change Daily Call for Today's Deal !!

Low Price Guarantee: We will BEAT anyone's valid advertised price in this issue by 2 percent !!* Call us LAST

All New Chips!

SIMM-72
4M $16.95
8M $33.90
60 nsec

Call for PowerBook Memory!!

1K

DIMM-168
8M $39.95
16M $71.90
60 nsec

1K

Prices subject to change w/o notice. Call for updates.
*Offer good for comparable modules in stock. Other restrictions & exceptions apply

Call for -70 -80 nsec

2K

SIMM-72
16M $62.95
32M $127
60 nsec

NO Credit Card Surcharge

2K

DIMM-168
32M $138
64M $269
60 nsec

Lifetime Warranty!

Call for EDO

Gold Plated DIMM's

Call for VRAM/Cache

Shadow Technologies

(800) 4-SHADOW
(800) 474-2369
M-F 9-6 PST
Sat 10-2

Gov, Edu, & Corp. P. O.'s OK with Approved Credit

Addr. verification used to prevent credit card fraud

VISA

WE SPECIALIZE IN
WHOLESALE WATERLESS COLOR PRINTING

1000 FULL COLOR BUSINESS CARDS FOR $100 Sug. retail price $179
1000 FULL COLOR POSTCARDS FOR $149 Sug. retail price $249

Printed waterless at 300 line screen from your computer files on Super Premium 10pt. Kromekote with our FREE scratch-resistant aqueous coating.

- BUSINESS CARDS
- POSTCARDS
- CD INSERTS
- CD TRAY LINERS
- BROCHURES
- BOOKLETS
- NEWSLETTERS
- POSTERS & MORE

FEATURING 300 LINE SCREEN WATERLESS OFFSET PRINTING

Rates for Brochures, Booklets and Flat Sheets are also available.

4-COLOR WATERLESS SPECIAL

5000 8-Page Booklets
8.5 x 5.5 Booklets printed from your files on 80 lb. Fortune Gloss Text. Includes full bleed, folding, collating, stitching and aqueous coating.
SIMILAR SAVINGS ON OTHER SIZES & QUANTITIES

$1689 SUGGESTED RETAIL $2699

GRAPHIC ARTS AVAILABLE

Copy Craft PRINTERS, INC.
4413 82nd Street • Lubbock, TX 79424 • FAX: 806.794.1305

QUARK Authorized Service Bureau
Factory Authorized COREL Service Bureau

Email your requests for printing quotes to request@copycraft.com

1.800.794.5594
CALL TODAY FOR A FREE COPY OF OUR NEW FULL COLOR CATALOG
Visit http://www.copycraft.com for more 4-Color Specials!

CIRCLE 426 ON READER SERVICE CARD

Mac & PC Sales & Service

POWERBOOK PORTABLE DESKTOP

Fax 408-336-3840
http://www.dyneng.com
email sales@dyneng.com
435 Park Dr., Ben Lomond, Ca. 95005

Dynamic Engineering
(408) 336-8891

CIRCLE 403 ON READER SERVICE CARD

RAM SIMMS DIMMS
•LIFETIME WARRANTY•
POWERBOOK MEMORY INCLUDING 3400
THE FINEST QUALITY WITH THE BEST PRICE!
MONITORS • COMPUTERS
MODEMS • PRINTERS
ALL STORAGEDEVICES
1.800.844.8356
FIBER CANYON
http://www. fibercanyon.com

CIRCLE 416 ON READER SERVICE CARD

MAGIC MAC & PC — Quality Solutions.! Best Prices !

DISK

Model	Description	Int.	Ext.
Quantum 1.2GB	Tempest,4500	$199	$254
2.1GB	Tempest,4500	$254	$304
2.1GB	Stratus,5400	$309	$359
2.1GB	Atlas1,7200	$349	$399
3.2GB	Tempest,4500	$329	$379
3.2GB	Stratus,5400	$359	$409
4.3GB	Stratus,5400	$459	$499
4.5GB	Atlas2,7200	$749	$799

REMOVABLE

Iomega	Zip	100MB	$149
Syquest	Syjet	1.5GB	$459
NOMAI	750MB		$299

Jaz 1GB Drive External $379

MEDIA

Iomega	Jaz/Zip	$82/$14
Syquest	Syjet 1.5G	$106
NOMAI	540MB	$59
	74min Gold Media	$3.99

CD-RECORDER
$779 Yamaha 4X/6X CDR
Includes CD Toast sofware

VIDEO RAM

1MB	Vram 7xxx, 8xxx PC	$24
2MB	Vram for ATI	$84
2MB	Vram for 4400,Motorola	$39
4MB	Vram for 4400,Motorola	$79

CACHE MEMORY

256K	Cache 4400,6400	$69
512K	Cache 4400,6400	$96
256K	7xxx, 8xxx PCI	$46
512K	7xxx, 8xxx PCI	$89

MAGIC MEMORY

64-Bit 168pin Dimms

8MB	1X64	60ns	$39
16MB	2X64	60ns	$69
32MB	4X64	60ns	$139
64MB	8X64	60ns	$279
128MB	16X64	60ns	$959

$139 32MB Dimm

32-Bit 72pin Simms

4MB	1X32	60ns	$19
8MB	2X32	60ns	$39
16MB	4X32	60ns	$69
32MB	8X32	60ns	$139
64MB	16X32	60ns	$364

Buy Factory Direct !! at Guaranteed low Prices
We Carry memory for all MacOS and PC's
All covered by our Lifetime Warrantee

POWERBOOK RAM

	8MB	16MB	32MB	48MB	64MB
PB500	$79	$99	$199		
PB 190/5300	$79	$109	$199	$319	
PB150					
PB1400	$89	$135	$255	$349	
PB3400		$139	$228	$319	$4[illegible]
PB160/180					

ACCELERATORS

XLR8	MACH SPEED 180MHz	$479
	MACH SPEED 200MHz	$679
	MACH SPEED 225MHz	$939
	MACH SPEED 233MHz	$1098
Newer Tech	MaxPower 180MHz	$598
	MaxPower 200MHz	$798
	MaxPower 225MHz	$1109

Returns must be accompanied by an RMA number. RMA's are subject to a restocking fee. Customers may be responsible for return freight. Pricing is subject to change without notice

Call Free (888) 910-0900
MAGIC MAC & PC
18437 Mt Langley Unit M Fountain Valley, Ca 92708 (714) 968-1979 Ph. (714) 968-9899 Fx.

Data Recovery in hours.

- Over 10 years of experience with clients worldwide including Apple, NASA, HP, and FedEx.
- We've recovered more than half-a-million megabytes of Mac Data alone.
- You only pay when there's a recovery.
- Express One-Day Service is available.
- Call 24 hours a day.

415-495-5556 • FAX 415-495-5553 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103

LAZARUS DATA RECOVERY
Working at the speed of business
800-341-DATA

CIRCLE 427 ON READER SERVICE CARD

MAC REPAIR & UPGRADE

24 HOUR SERVICE TURNAROUND • LONGER WARRANTY
FREE DIAGNOSTIC • COMPETITIVE PRICE

* Specialize in component repairs:
  • Power Mac • Power Book • Logic boards
* Advance Exchanges

DT&T MACINTOSH SERVICES, INC.

800-622-7977

720 East Evelyn Ave., Sunnyvale, CA 94086 • Tel: 408-720-9899 • Fax: 408-720-9459
http://www.dttservice.com

MAC REPAIR

Mac Shop Northwest
WWW.MACSHOP.COM

- Apple™ Certified Technicians
- One-Day Service Turnaround*
- Hard Disk Repair & Data Recovery
- Up to 75% below Dealer Rates
- Component-Level Repairs
- Expert Advice and Prices by Phone
- Power Supplies & Logic Boards*
- Lifetime Repair Warranty*

Tel: 1-503-642-3456
*on many repairs. Visa/MC/AX. Fast overnight shipping available. We use genuine Apple™ parts.

FEDERAL EXPRESS

1-800-MAC-SHOP

DATA RECOVERY: 800-440-1904

7 good reasons to choose DriveSavers:

1. We're the most trusted and respected data recovery specialists.
2. 24-hour, onsite, and weekend service available.
3. Proprietary techniques so advanced we retrieve data others might simply abandon.
4. Over 12 years of data recovery experience.
5. Certified to maintain most drive warranties.
6. Featured by CNN, NextStep, C-Net, Forbes.
7. All storage devices; DOS, Win95, WinNT, OS/2, Mac OS, UNIX, Sun, SGI, Novell.

©1997 DRIVESAVERS, INC.

Clip and save this ad. Visit DriveSavers at: www.drivesavers.com

DRIVESAVERS, INC. 400 BEL MARIN KEYS BLVD., NOVATO, CA 94949, INTL: 415-382-2000, FAX: 415-883-0780

DESKTOP OUTPUT SERVICES

50% OFF YOUR FIRST JOB

MAC & PC FILES ACCEPTED

- Linotronic output up to 3386 dpi
- Dye-Sublimation ■ Wax Thermal
- Color Laser Prints/Copies
- Big Color Posters

Celebrating 10 years of offering the highest quality, fastest turnaround and lowest prices.

SPECTRUM ARTS, LTD.
7455 New Ridge Rd. Suite E Hanover, MD 21076
800-788-1357 410-691-7715 301-621-1181
www.spectrumarts.com

CIRCLE 465 ON READER SERVICE CARD

OVERNIGHT

Excellent Prices
Technical Help
Quick Service
Quality Work

Digital Output PC or Mac

Send PC/Mac files by FTP or Priority Air Express to Imagers and for most output services, your finished work is in your hands the very next morning.

DIGITAL 4 COLOR OFFSET PRINTING

QuickMaster HEIDELBERG Print all you need!

indigo Print only what you need!

Color press proofs overnight. Upon approval, print run in 24-48 hours. Brochures, Business Cards, Labels, Postcards, Newsletters, Booklets...

FILM SCANNING

Kodak PHOTO CD SERVICE PROVIDER

Improved Pro scans from 35mm to 4x5 formats are $8 each and 35mm scans to the Master Photo CD are $.90. Great for print,posters,& NewMedia uses.

BIG COLOR POSTERS

DisplayMaker

Digital color posters for presentations, retail,& transit...as low as $6/sq.ft.

DIGITAL COLOR LASERS

XEROX. DocuColor 40

Single or double-sided quality color laser printing... On-demand printing - fast!
As low as $.50 per side

POSTSCRIPT $3.00 Slides Only Quality Guaranteed

SLIDE IMAGING
Overnight is $4.95.
Economy is $3.00 in 48+ hours.

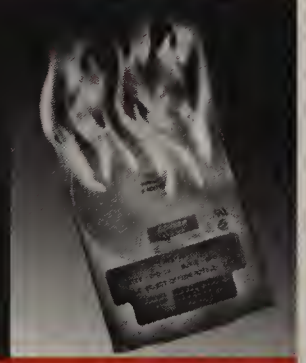
A FEW OF OUR OTHER SERVICES...
4x5(8k)negative,pos.,b&w output...$35
Fujix photographic color prints... $10.00

IMAGERS® Digital Production Center
INFO & QUOTES on the web
800.232.5411 or 404.351.5800
1575 Northside Dr.Ste.490 Atlanta 30318
www.imagers.com

CIRCLE 424 ON READER SERVICE CARD

PROFESSIONAL DATA RECOVERY SERVICES.

Hard Drives, Floppy Drives, Syquest, EZ-135, ZIP, JAZ, Optical & Bernoulli.



TOTAL RECALL® THE DATA RECOVERY COMPANY™

800 743-0594 VISIT US AT... www.recallusa.com

2462 WAHNOKA ROAD • COLO SPRINGS CO 80918 • TEL (719) 380-1616 • FAX (719) 380-7022

CIRCLE 458 ON READER SERVICE CARD

ONTRACK DATA RECOVERY

The World Leader in Professional Data Recovery Services!

- Mac Specialists
- Any Media
- All Operating Systems
- Emergency Services

Mention this ad for a FREE diagnostic evaluation!

Ontrack® DATA RECOVERY

Mpls • LA • DC • London • Tokyo • Stuttgart
1-800-872-2599
www.ontrack.com
©1996 Ontrack Data Recovery, Inc.

"A Macworld never goes by without my checking a complete prices. I always look to see if what I need is there."
—Owner, Computer Consultants

Macworld SHOPPER

DIGITAL IMAGING

Slides & Negatives	$3.75
4x5 chromes/negs	$30
Large Posters & Displays	
Scanning High & Low Res	
Photo CD Scans & LVT Output	
Short Run 1200 dpi Color Output	

Quantity Prints, Slides, Overheads

Show & Tell 39 W 38th St., NY, NY 10018
212 840 2912 • 212 840 7953 (fax)

CIRCLE 550 ON READER SERVICE CARD

SLIDES $2.75 FIERY $4.75

an introductory offer!

PC & MAC, 35mm SLIDES & DUPES, SCANS, OVERHEADS, COLOR PRINTS

NEXTWAVE PRODUCTIONS
MULTIMEDIA PRESENTATIONS AND ONLINE SERVICES
134 TENTH AVENUE NEW YORK, NY 10011-4727

call 212 989 2727, 800 445 9002
www.NextwaveProd.com

"A RARE, HIGH-TECH EXPERIENCE THAT TEACHES GIRLS TO THINK FOR THEMSELVES, AND TO DISCOVER AND EXPLORE NEW POSSIBILITIES."

—MARIE C. WILSON, PRESIDENT, MS. FOUNDATION

"... FOR EVERY FOUR SOFTWARE PROGRAMS PARENTS BUY FOR SONS, THEY BUY ONLY ONE FOR DAUGHTERS – EVEN THOUGH GIRLS AND BOYS AGES 6 TO 10 SPEND THE SAME AMOUNT OF TIME ON COMPUTERS"

—ACCORDING TO RESEARCH DONE BY MATTEL AND QUOTED IN NEWSWEEK, OCTOBER 23, 1996

"AROUND THE AGE OF 10, GIRL'S USAGE OF COMPUTERS FALLS OFF, JUST WHEN BOYS ARE DEVELOPING SERIOUS RELATIONSHIPS WITH THEIR DOOM AVATARS"

—NEWSWEEK, OCTOBER 23, 1996

Girls are just as interested in technology as boys. But finding technology products with girl-oriented content is difficult and many girls lose interest. This is about to change. **Tech Girl's Internet Adventures** is a lavishly illustrated, colorful new book that facilitates girls' involvement with technology, helping them build a place for themselves in the future.

In **Tech Girl's Internet Adventures**, Tech Girl, the perfect online guide for girls 8 and up, leads girls safely through Cyberspace. She introduces them to over 100 girl-oriented Web sites and gives them step-by-step instructions on using the Internet. She shows girls how to use online technology to explore their interests and communicate with other girls. Girls learn about themselves while they learn about computers.

Look for **Tech Girl's Internet Adventures** at your favorite bookstore or computer store. To order a single copy, call 800/762-2974. To order in bulk or volume, call 800/842-8996 ext. 3048 and ask for Eric Taylor.

Tech Girl's Internet Adventures
by Girl Tech
0-7645-3046-1; 260 pages; 1 CD-ROM
$19.99 U.S.; $27.99 Canada

Check out IDG Books' new Web site at
http://www.idgbooks.com

http://www.girltech.com

IDG Books Worldwide
919 E. Hillsdale Blvd, Ste. 400
Foster City, CA 94404
Prices subject to change without notice.

continued from page 234
drag and drop, and a neat little clock up in your menu bar. Oh, yeah—and TeachText has a brand-new name!

Scorpio (the Bug; October 24–November 22)—We were born with a conscience for a reason, my friend, and you've been ignoring yours for far too long. You didn't register the shareware you've now been using for two years; you haven't read a Read Me First file for over a year; and you've got an AOL screen name you wouldn't want your family to know. And that copy of Adobe Photoshop? Use it for "evaluative" purposes all you want, but remember the rumor: every Photoshop document has an invisible serial number embedded in it. 'Nuff said.

Fate has a way of catching up with those who flout the great unwritten Computer Code. Don't tempt it.

Sagittarius (the Half-Mac, Half-PC; November 23–December 21)—Ever notice how everything mechanical seems to break after you take ownership? The answering machine dies, some plastic panel falls off your car dashboard, and Norton Utilities reports a "B-tree error" every time it checks your hard drive.

Don't tell me you think Netscape Navigator keeps crashing just because it's buggy! Nope, it's your aura: technology just doesn't like you. Time to start approaching your equipment with a new attitude. Consider *its* feelings for a change. Remember, computers are people, too.

Capricorn (the Billy Gates; December 22–January 20)—O long-suffering Capricorn! Thou obeyest every rule, purchasest every software upgrade, holdest down the shift key with every installation, keepest shareware and fringe technologies off thy hard drive, backest up daily, and thou *still* gettest system freezes. What giveth?

Fear not, dear Capricorn; the coming months will bring many new OS versions to your Mac. Fate will reward its loyal soldiers when the Great Day of Installation arrives.

Aquarius (the Web Surfer; January 21–February 18)—It's one thing to care about your data. It's quite another to limp along with "250K remaining" on your hard drive for two years just because you worry about throwing away some file you'll need again. How many times have you avoided cleansing your Preferences folder, wondering if you actually might need that Embedding Preferences file someday?

This is a good month for confronting your fears, buying a Zip drive for offloading all that junk, and combing through your little electronic attic. Think how much better you'll both feel.

Pisces (the Fish Screen Saver; February 19–March 20)—Sure you're emotional, but this is getting ridiculous: a Type 74 error makes you hysterical with rage and confusion. You've been spotted weeping quietly at a particularly well designed Web page. And if that hotshot at the office informs you that the Mac is dead *one more time*, they'll find him strangled with his own two-button-mouse cord.

On the one hand, maybe you should control yourself; try saying it out loud: "It's just a machine." On the other hand, stifling your emotion could be dangerous—after all, the Mac never bothers to hide *its* humanity. And isn't that what makes it great? **m**

DAVID POGUE, coauthor of *The Weird Wide Web* (IDG Books Worldwide, 1997), reads the stars regularly. Just yesterday he read that Madonna has a new hairdo.

IDG INTERNATIONAL DATA GROUP September 1997, Volume 14, Number 9 Macworld (ISSN 0741-8647) is published monthly by Macworld Communications, Inc. Editorial and business offices: 501 Second St., San Francisco, CA 94107, 415/243-0505. Subscription orders and inquiries should be directed to 800/288-6848 or 303/604-1465. Subscription rates are $30 for 12 issues, $60 for 24 issues, and $90 for 36 issues. Foreign orders must be prepaid in U.S. funds with additional postage. Add $18 per year for postage for Canada and Mexico subscribers. Add $69 per year for postage to all other countries. Periodicals postage paid at San Francisco, California, and at additional mailing offices. Postmaster: Send address changes to Macworld, P.O. Box 54529, Boulder, CO 80322-4529. Printed in the U.S.A.

DIRECTORY

Macworld DIRECTORY

ACCOUNTING SOFTWARE

COMPLETE BUSINESS SOLUTIONS
e-stop shop for hardware, software, financing and services any size business. Our accounting programs range from sic to sophisticated multi-user systems plus Point of Sale, ventory, Invoicing and Payroll packages. Call for a catalog or mail us at info@maxworld.com.
MAX COMPUTERS • (800) 656-6299
1506 25th Street, San Francisco, CA 94107
http://www.maxworld.com/ • Fax (415) 695-0257
CIRCLE 565 ON READER SERVICE CARD

COMPUTER INSURANCE

INSURES YOUR MAC
The Computerowners (sm) insurance policy repairs or replaces hardware, media and purchased software. $49 a year covers up to $2,000 of equipment against theft, fire, accidents, power surge, natural disasters and more! $50 deductible. Call for immediate coverage or information. 1-800-800-1492.
SAFEWARE, The Insurance Agency, Inc.
5760 N. High Street, PO Box 656
Columbus, Ohio 43085
CIRCLE 569 ON READER SERVICE CARD

GENEALOGY SOFTWARE

REUNION® 4.0
Rated the BEST family tree software by MacUser, Macworld, Mac Home Journal. Create large family tree charts with pictures, perfect for family reunions! Now includes a FREE UPGRADE to Reunion 5.(Coming Soon) To order, call MacWarehouse 800-255-6227. Free demo on our Web site: www.LeisterPro.com
LEISTER PRODUCTIONS
P.O. Box 289 Mechanicsburg, PA 17055
tel: (717)697-1378 • e-mail: info@LeisterPro.com

MONITORS

Refurbished 17" & 20" Color Monitors
ony GDM 1602 17" RGB Color, .26 dot pitch. Supports 2x624 pixel display. 90 Day replacement warranty....$299.
ony GDM 1960 20" RGB Color, .29 dot pitch. Supports 24x768 pixel display. 90 Day replacement warranty ...$699.
DFI COMPUTING
181 Salem St., Malden, MA
MC/VISA/AMEX 1-800-390-7020
CIRCLE 579 ON READER SERVICE CARD

POWERBOOK BATTERIES & RAM

Your Best Battery & RAM Source!
From PB 100 to 3400, Mac Plus to Power Mac 9600, Erudite has what you need at prices that won't slow you down. We feature power products from BTI and Absolute, memory and 56K modems from Viking - all new & fully warranted. Call, e-mail or shop online for your best price! Visa/MC/Amex/Discover Accepted.
ERUDITE PRODUCTS CORP.
409 Grand Ave., Englewood, NJ 07631 800-310-8505
EMail: sales@EPC-Online.Com, www.epc-online.com
CIRCLE 577 ON READER SERVICE CARD

RELIGION

Bible Study on Disk or CD-Rom
Full Featured. Fast & Friendly Bible study software. As the leader in Bible study software since 1981 we have continued to listen to our customers and provide them with the tools they need. Call for a FREE catalog. http://www.brs-inc.com/bible
BIBLE RESEARCH SYSTEMS
2013 Wells Branch Pkwy. #304, Austin, TX 78728
(800) 423-1228 (512) 251-7541

The Desktop Critic

by David Pogue

Your Back-Page Mac Horoscope

OUR FORTUNES, DEAR READER, ARE NOT IN OUR STARS BUT IN OURSELVES

GUESS WHAT'S ON THE back-page column of a normal magazine? Hint: It isn't Microsoft jokes, Apple musicals, or computer-industry sarcasm—it's horoscopes. So why should we, as Mac nuts, be any less interested in our fortunes? Surely our computers have ups, downs, and bad-hair days, just as people do.

Aries (the RAM Chip; March 21–April 20)—You've never been able to let the masses do your beta testing, have you? No, you're the quintessential early adopter. Your Mac history reads like a catalog of short-lived models: you bought the IIvx, sold it to buy a Mac TV, and last year got yourself a PowerBook 5300—a week before it was discontinued.

Dare I even *mention* the $750 you spent on the original Newton that now lives in the drawer with the batteries and extension cords?

But it doesn't have to be like this. This year, write it 100 times on your fridge: "I Will Not Buy Version 1.0 of Anything."

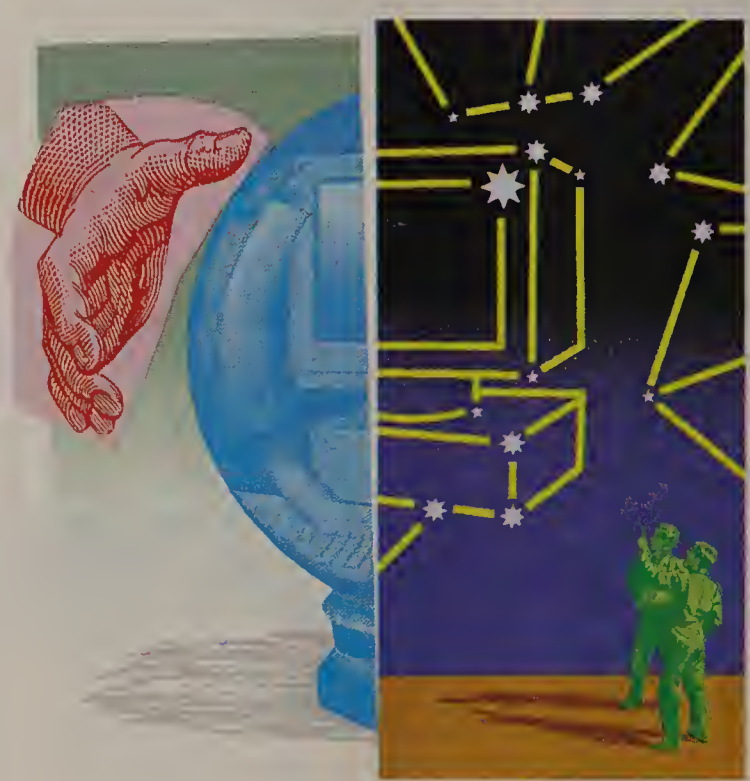
Taurus (the Dogcow; April 21–May 21)—You wouldn't know what ⌘-P stands for if it bit you on the nose. Keyboard shortcuts just aren't your thing—hey, that's what *menus* are for, right? In fact, shortcuts *period* aren't your style; you pull down menus by hand, type in your AOL password every single time you sign on, and when telling somebody a Web page address, you actually spell out that whole "H-T-T-P colon slash slash" business.

There's nothing wrong with being methodical. But watch your back: rivals are gaining on you. And they've got QuicKeys.

Gemini (the Clones; May 22–June 21)—Why don't you just throw out your printer, for goodness' sake? Everything you do or say is electronic anyway; you may as well reclaim the desk space for a couple more modems. Or spend the money you'll save on a second Internet account; sure, your first one's unlimited, but doesn't it make you all giggly to contemplate surfing two cyberspaces simultaneously?

Cancer (the Crabby Tech Support Rep; June 22–July 22)—The Cancerian Way is to protect. You've got a filter for your screen, a latex skin for your keyboard, and a surge-suppressing UPS for your power cord. You're so paranoid, you shut down your Mac just to unplug the *microphone*.

But even the best umbrella won't help when it's raining cinder blocks; as Saturn moves into Capricorn, your Mac becomes vulnerable from angles you don't suspect.



You can't protect your stuff from Life, pal, as you're about to find out. Relax and enjoy the surprise; remember, it's only plastic.

Leo (the ISDN Line; July 23–August 23)—Power User, thy name is Leo. Frankly, between your eight programmed trackball buttons, macro-tricked-out keyboard, and shareware-coated System Folder arteries, nobody but you could even operate your Mac. Man, you just *hated* it when the 250MHz PowerTower Pro came out, didn't you? It made your 225MHz look feeble. Maybe you can take consolation from your color laser printer, digital camera, and 1523 extensions.

No wonder you get 14 Mac catalogs each week; the mail-order firms are on to you. Otherwise, your feature lust is nothing to worry about. Your Mac will continue to be your faithful servant—if it starts up at all.

Virgo (the Clean Install; August 24–September 22)—It's no surprise you got into computers, really; where else can you indulge your neatness compulsion so easily? You close every window before shutting down; you'd die before you left an icon out on the desktop; and you alone among the millions actually use *labels* to color-code your folders.

It's just as much fun with your hardware, too, isn't it? Must've taken months to find those clever under-the-desk, colored cable organizers. Yes, it was a lot of effort to file your 75 CD-ROM discs into color-coded disc wallets, but it sure was satisfying. And I don't need to look in your desk drawers to know you keep your floppy disks in the little clear-plastic sleeves that everyone else throws away.

Today's tip: Better check your calendar. Isn't this mouse-ball-cleaning day?

Libra (the Shift Keys; September 23–October 23)—How *is* your SE/30 doing these days, anyway? Yeah, yeah: you're holding off on buying a new Mac until the market settles down a little. *You're* no dummy—you have no intention of watching your new Mac model superseded by newer, cheaper ones.

But I've got news for ya, Libra: you'd be amazed at how technology has marched on. They've got color now, and

continues on page 233

GENE GREIF

Drop In and
See Us at Macworld!
Booth #5420
Animagician

Creating Animate
a Special Kin

Geoff Miller at Disney Has Chosen Power.

Even though the amazing special effects in Disney's television and feature projects appear on-screen as if by magic, the reality is they come to life through endless hours of focused attention. That's where Geoffrey Miller, visual effects designer, steps in. The pictures might look like magic, but the fantasy becomes reality only with some serious horsepower. So Geoff fires up his PowerTower™ Pro, because he knows the client demands quality and affordability. Power Computing delivers both.

Mac OS

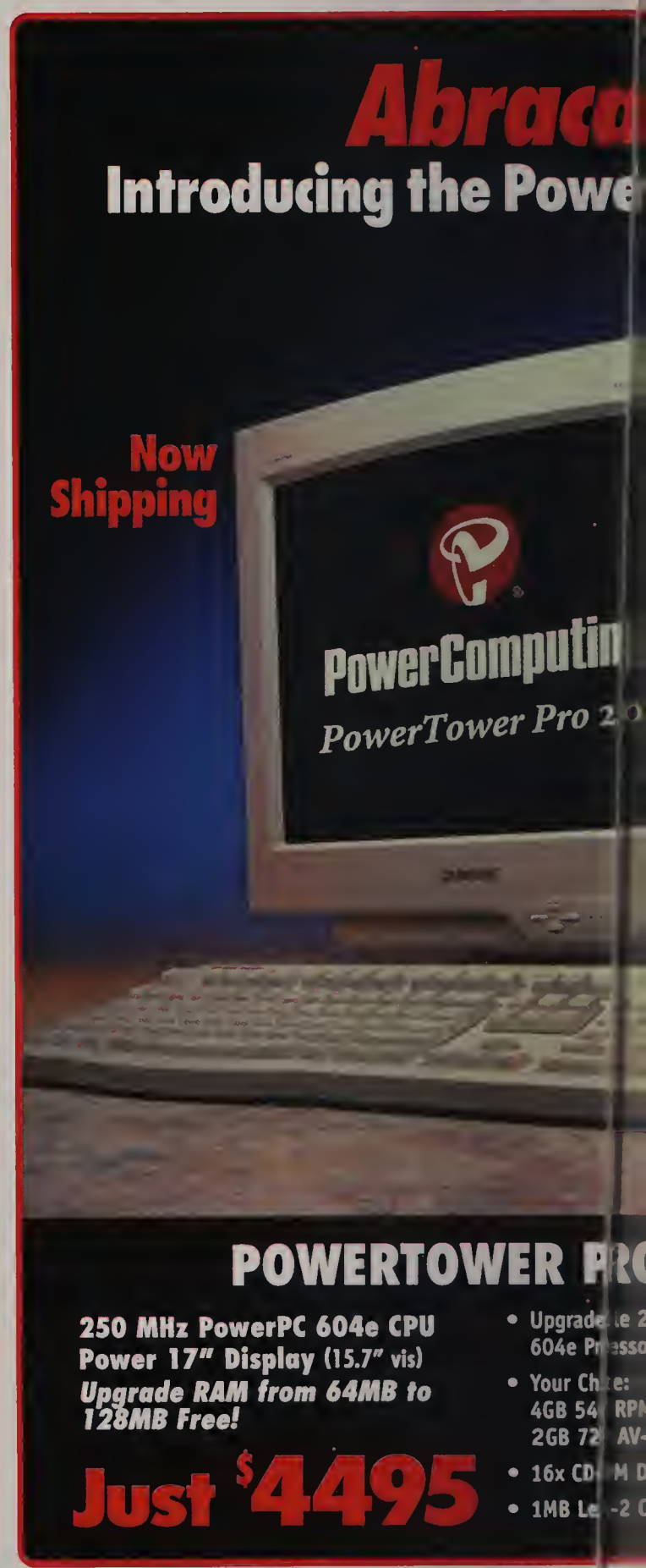
"Power Computing's PowerTower Pro 250 MHz delivers the fastest graphics applications performance of any desktop system PC WEEK Labs has tested." –*PC Week* May 5, 1997

Power Computing Is Still the Only Company to Ship a 250 MHz System.

Now everyone can unleash this level of performance with the PowerTower Pro 250 — the fastest, single-processor system you can put on your desk. There really is no other option for the creative professional. Whether you're running filters, resizing documents, manipulating layers, or saving a mega-file, it all happens at shocking speed. No more tedious staring at progress bars or spinning clocks. *And now when you buy a PowerTower™ Pro, we'll upgrade it to 128MB RAM, Free!*

Custom-Configuration. Direct.

Innovation is a way of life at Power Computing. And we've made custom-configuration a part of that philosophy. If you want a Zip™ or Jaz™ (or both), there's no pain. Power Computing will custom-configure any system for you, test it, and ship it quick. We cover you with lifetime, toll-free technical support and customer service. Plus, a 30-day, love-me-or-I'm-history, money-back guarantee. Call now or visit our enhanced website at www.powercc.com. It's time to unleash ***your*** imagination.



© 19 7 Power Computing Corporation. All rights reserved June 1997. The Mac OS and the Mac OS logo are trademarks of Apple Computer, Inc., and are used under license from Apple Computer, Inc. The Mac OS logo is registered in the Unit Machines, Corp., and is used under license. All other brand and/or product names are the property of their respective holders. Special thanks to Colin Scully for his help with this ad. Power Computing is not respor

l Magic Demands of Power...

250 COMPLETE

- MHz PowerPC
- lard Drive or
  pable Hard Drive
- ve
- he
- IX Micro Twin Turbo 128-bit Video Accelerator with 8MB VRAM
- 6 PCI Expansion Slots
- $2,500 Bundled Software Including Macromedia Director 5.0
- Extended Keyboard and Mouse

POWERTOWER PRO 250 STARTER

250 MHz PowerPC 604e Processor
Upgrade RAM from 32MB to 128MB Free
Macromedia Director 5.0

- Your Choice: 4GB 5400 RPM Hard Drive or 2GB 7200 RPM AV-Capable Hard Drive
- 16x CD-ROM Drive
- 1MB Level-2 Cache
- IX Micro Twin Turbo 128-bit Video Accelerator with 8MB VRAM
- 6 PCI Expansion Slots
- $2,500 Bundled Software Including Macromedia Director 5.0
- Extended Keyboard and Mouse
- Tower Enclosure

$3995 36 month business lease $161 per month†

PowerTower Pro 225 Starter Just $3695

POWERTOWER PRO 225 CORE

225 MHz PowerPC 604e Processor
Upgrade RAM from 16MB to 128MB Free
Macromedia Director 5.0

- 2GB 5400 RPM Hard Drive
- 16x CD-ROM Drive
- 1MB Level-2 Cache
- 64-bit Graphics Acceleration with 2MB VRAM
- 6 PCI Expansion Slots
- $2,500 Bundled Software Including Macromedia Director 5.0
- Extended Keyboard and Mouse
- Tower Enclosure

$2995 36 month business lease $118 per month

PowerTower Pro 200 Core Just $2695

POWERCENTER™ PRO 210 STARTER

210 MHz PowerPC 604e Processor
Upgrade RAM from 16MB to 64MB Free
Exclusive 60 MHz Bus

- 2GB 5400 RPM Hard Drive
- 16x CD-ROM Drive
- 1MB Level-2 Cache
- 2MB Video RAM (4MB Max)
- On-board 3D Graphics Acceleration
- 3 PCI Expansion Slots
- $1,000 Bundled Software
- Extended Keyboard and Mouse
- Low-profile Enclosure

$2395 36 month business lease $88 per month

POWERBASE™ 200 STARTER

200 MHz PowerPC 603e Processor
16MB RAM (160MB max)
On-Board 3D Graphics Acceleration

- 2GB IDE Hard Drive*
- 12x CD-ROM Drive
- 256K Level-2 Cache
- 2MB Video DRAM (4MB max)
- 3 PCI Expansion Slots
- $1,000 Bundled Software Including Weekend Warrior™ by Bungie Software
- Extended Keyboard & Mouse
- Low-profile Enclosure

$100 REBATE

$1299 36 month business lease $48 per month

after rebate (expires 7/31/97)

PowerBase 240 Starter After Rebate, Just $1499

ORDER DIRECT: 800-488-0907

OR ORDER ON OUR EASY TO USE WEBSITE AT WWW.POWERCC.COM

Major Accounts, Education and Government customers call 800-952-9251
Ask about leasing and purchase order payment plans.

PowerComputing

2400 South IH 35, Round Rock, TX 78681 • Tel: 512-388-6868 • Fax: 512-388-6799

Circle 161 on reader service card

ther countries. The Power Computing logo is a registered trademark of Power Computing Corporation. PowerTower, PowerCenter, and PowerBase are trademarks of Power Computing Corporation. PowerPC is a trademark of International Business
in photography or typography. Shipping will not be refunded. Prices and specifications are valid in the U.S. only and are subject to change without notice. †Prices do not include applicable taxes. *2000KB capacity.

Orbit. It's a trip.

Tired of that same old mouse? Want to go where no one has ever gone before?

Buckle your seatbelts and get ready for Orbit.

Orbit is a new kind of trackball that combines the comfort of a mouse with the precision of a trackball. And Orbit is designed to feel like an extension of your own hand. The result is out-of-this-world comfort and total fingertip control of your cursor.

Orbit comes with our award-winning MouseWorks software, a 5-year warranty, toll-free technical support, and a no-risk 90-day trial.

Don't settle for the ordinary. Get into Orbit.

PC Mac Connection 1-800-986-2259

MacWAREHOUSE 1-800-255-6227

KENSINGTON®

www.kensington.com

The Mac Zone 1-800-258-2088

MacMall 1-800-222-2808

APS Technologies 1-800-374-5681

Circle 1 on reader service card

Orbit and MouseWorks are trademarks and Kensington is a registered trademark of Kensington Microware Limited. All other trademarks are the property of their respective owners. © 1997 Kensington Microware Limited. 3